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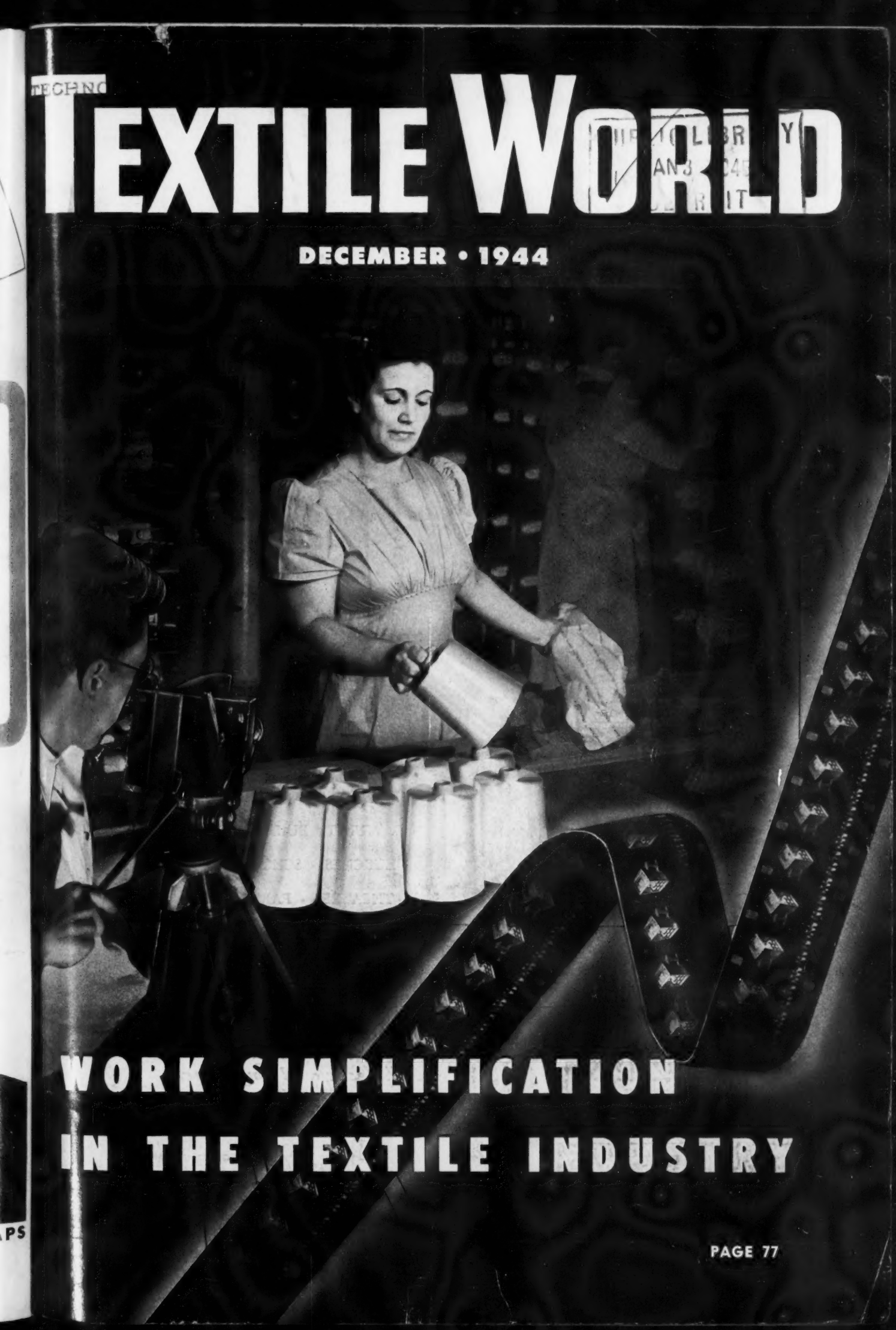

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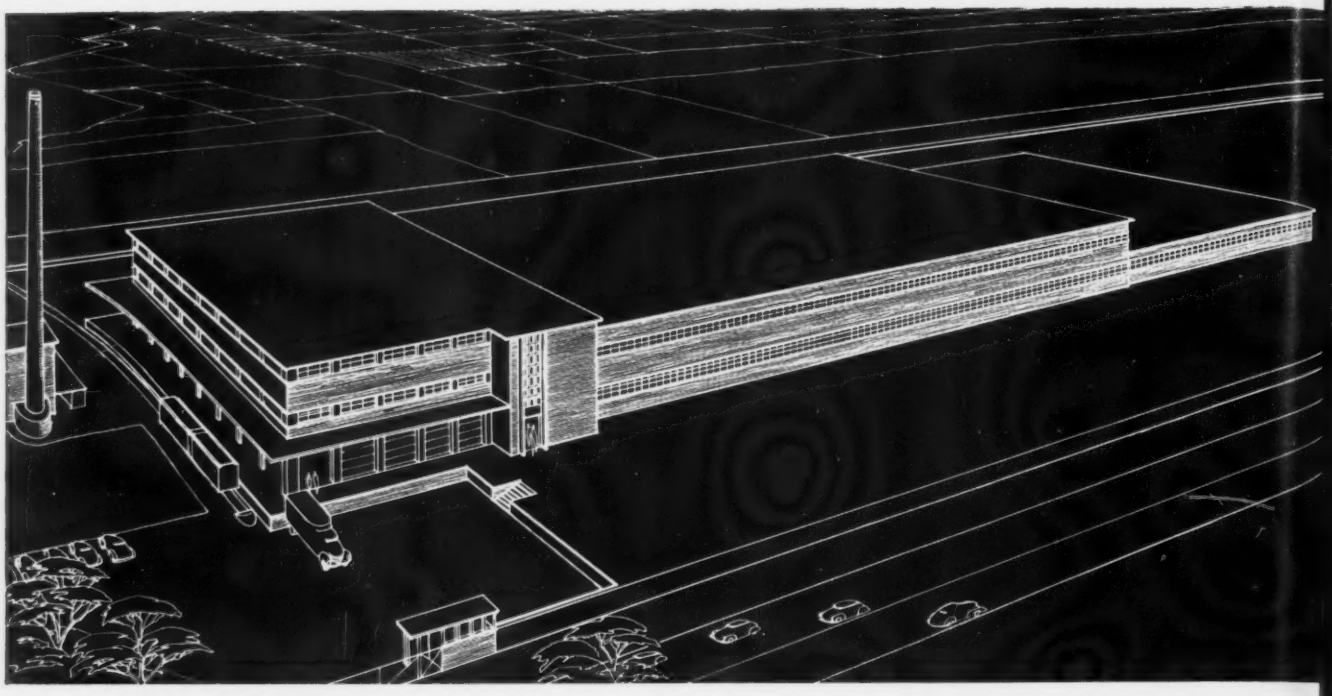

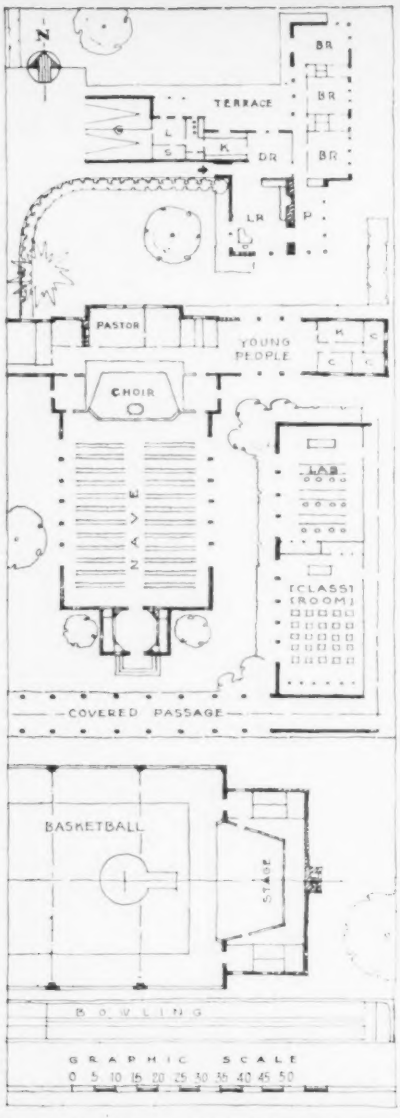

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TWENTY-SIX YEARS NATIONWIDE EXPERIENCE IN TEXTILE AND COMMUNITY DEVELOPMENT

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Editorial

A Prospective for COTTON Planners

WE WISH that something more could be expected from the congressional hearings on the raw-cotton problem under way in Washington this month than merely new tricks for supporting the cotton farmers at the expense of mills, consumers, and taxpayers; but, if past history can be taken as a guide, the only people who are likely to derive benefit from the outcome, with the exception of the farmers, are foreign textile manufacturers and foreign consumers.

The chief errors usually made by our legislators result apparently from their unwillingness or inability to look far enough ahead. The temporary measures they adopt only aggravate the problem and lead to more and more short-sighted measures of the same general character. These men are of course constantly hoping for a break—trusting that at some time, somehow, technological progress will come to their rescue by reducing the costs of raising cotton or that some hitherto unrecognized need and demand for cotton will arise.

One of the factors which encourage this hope is the knowledge that inventors, undiscouraged by past failures, are still trying to develop thoroughly satisfactory machines for picking cotton; but all men who are trying to solve the raw-cotton problem must remember that technological progress in one activity must do more than match such progress in a competing activity.

IN OTHER WORDS, any textile-school freshman facing the textile horizon in the middle of a cloudy night can see that all natural fibers are heading, although at varying speeds, for eventual eclipse. To be sure, cotton has more spinnability and more strength-retaining absorptivity than synthetic fibers have today, and it can provide more loftiness in yarns. But how permanent are these advantages? What is to prevent the manufacturers of nylon from thermo-setting a permanent crinkle or curl or spiral in their fibers? Recent experiments indicate that good surface friction can be given high-tenacity viscose fibers by a dispersion of a polymer of silica. Our legislators must recognize the vital fact that, although the cost of growing cotton can possibly be reduced, so can the cost of producing synthetics; and that, while the mechanical picking of cotton tends to lower the grade of the cotton fiber, the various synthetic fibers are clean to start with, and the possibilities in improving their properties are unlimited.

Does all this mean that we should let the ruthless law of nature and of economics—the law of survival of the fittest—take effect? At least in part, yes—but perhaps we do not need to be heartless about it. In an uncontrolled economy, those who find themselves in an unprofitable business are obliged to turn to something else. Even the success of the mechanical cotton picker would force the conversion of thousands of human pickers to other forms of livelihood. We should accelerate that movement. Let us, instead of spending millions to support the cotton growers with what amounts to perpetual charity, investigate the possibilities in spending those same millions to move them into an activity with a more promising future. If successful, our expenditures will then be temporary and the solution of the raw-cotton problem will be definite and final. What wiser course is there for our legislators to follow?

IT IS A COURSE which is uncharted, difficult, and challenging; and the man who is a pessimist on America's future will believe that it offers no better solution than does the artificial support of cotton agriculture. Such a man sees in the dim distance nothing but a stagnant economy, with a diminishing production and an increasing unemployment, reducing further the demand for cotton from those who contrive to grow it and precluding the possibility of jobs for those who decide to abandon it.

Please, one thing at a time. We must do many things to insure a sound and healthy overall economy; but, with a solid understanding of what makes an economic mechanism run, we have got to do our best with each of the elements which make up that mechanism.

Cotton is still an exceedingly important crop, and ahead of it lies a period of large, although diminishing, demand. Now is the time, therefore, to begin conclusive measures which it is obvious that we must sooner or later whole-heartedly adopt, even if for no other purpose than to benefit the growers themselves. Better to begin conversion now, while the numbers of people involved are relatively small, than to risk the possibility that a leap forward in the progress of synthetic fibers will produce a sudden collapse of the whole cotton economic structure, for which we are totally unprepared.

Edwin L. Fowle

To Keep Drive Efficiency Up
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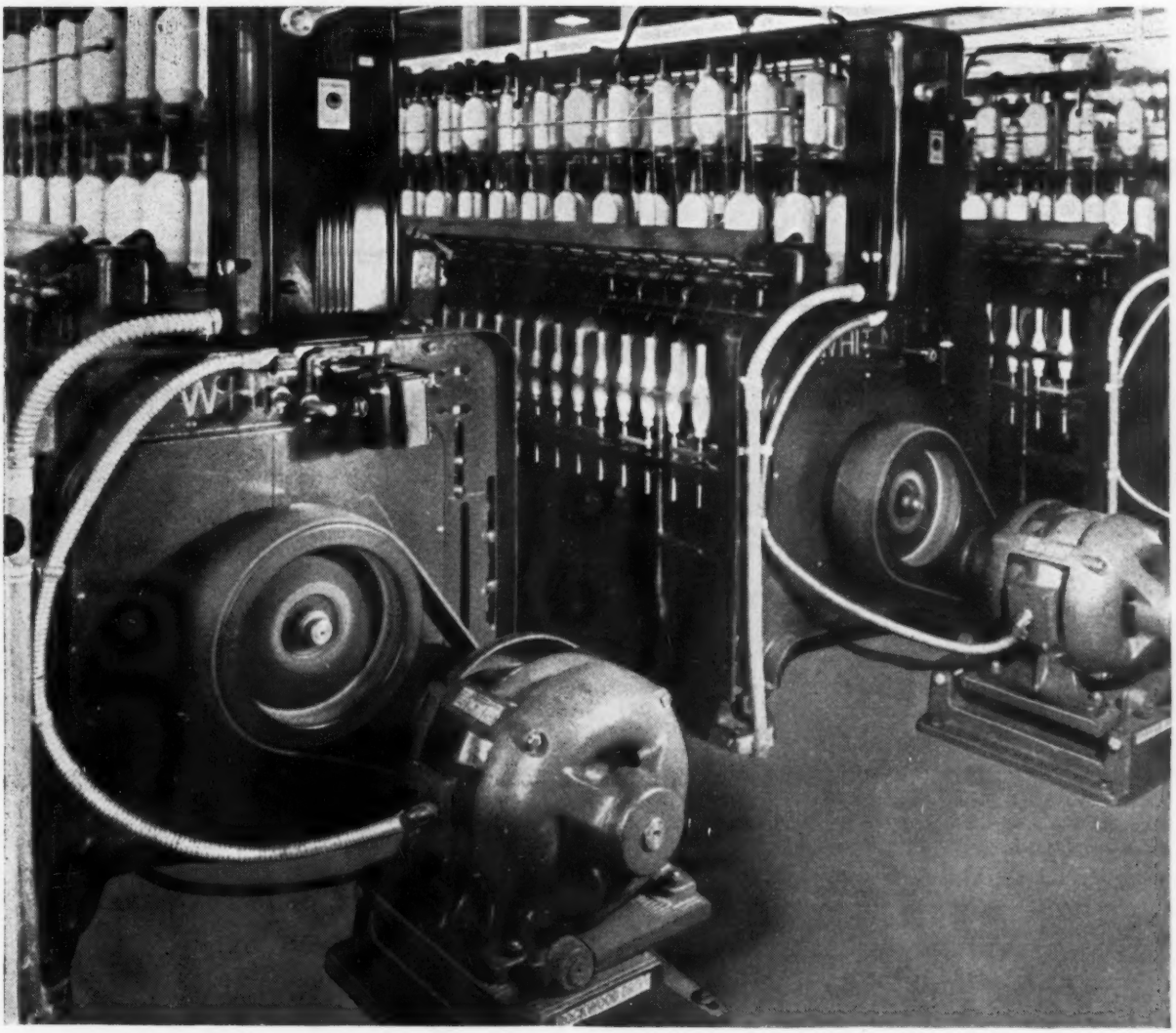

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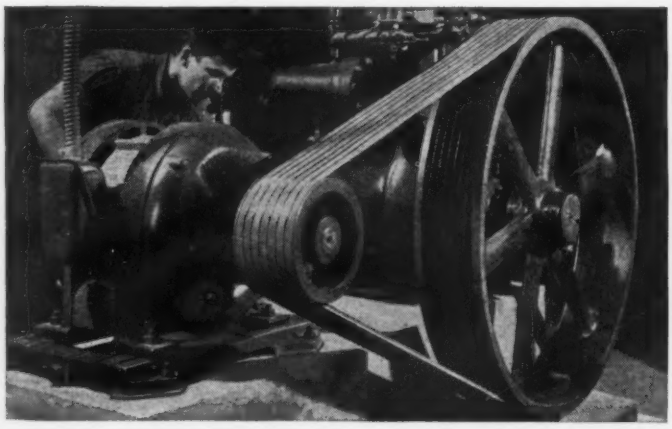

1. In most applications, an 1800 rpm motor with Texrope Drive will ably do the job of a lower-speed, direct-connected motor . . . *and* give you *exactly* the speed you want — *at lower cost!*

2. When you buy an 1800 rpm instead of 450 rpm 15 hp squirrel-cage motor, for example, 600 lb of critical materials are saved. And *you* save well over $200—with the drive figured in! This saving is typical.

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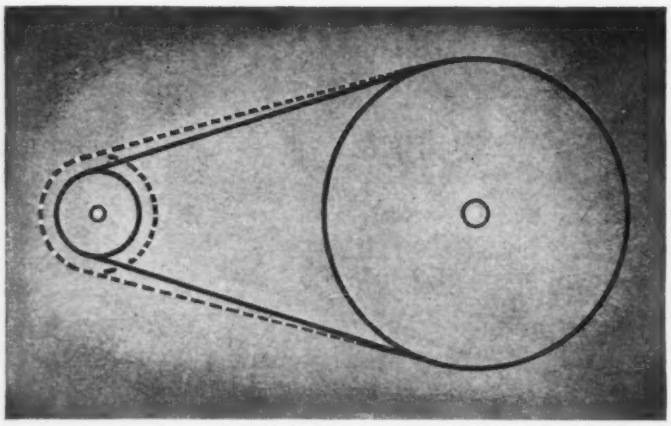

1. Infrequently needed speed changes can be had by changing from one size motor sheave to another. By juggling *complete* drives, speeds can be changed over the full range — from 1:1 to 7:1.

2. With the Allis-Chalmers Vari-Pitch Sheave, you can increase or decrease speed by adjusting sheave diameter, as above. Within limits, an unbroken series of speeds can be obtained.

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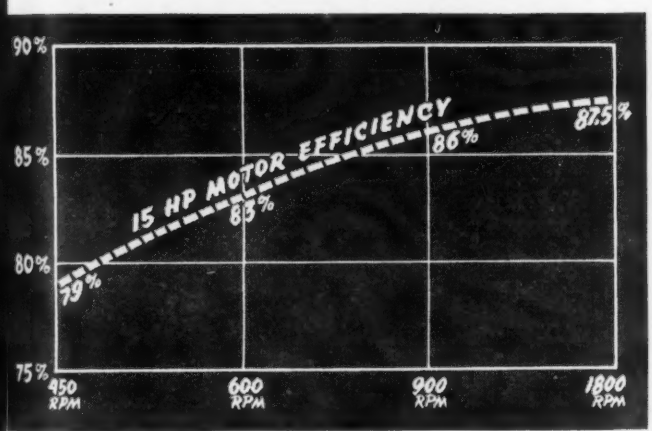
of Low-Speed Motors...



3. Note that efficiency rises from 79% for a 450 rpm motor to 87.5% for an 1800 rpm motor. Comparing power consumption, the 1800 rpm motor saves you over 30 kwh/24 hr. day.

of Multi-Speed Motors...

3. Allis-Chalmers Vari-Pitch Speed Changer gives you infinite changes at the turn of a wheel — within 3.75 to 1. It's the most compact, flexible variable-speed transmission available.

It was good business in peacetime to use — as widely as possible — high-speed motors with Allis-Chalmers Texrope Drives...and single-speed motors with Allis-Chalmers Vari-Pitch Sheaves and Speed-Changers. And it's clearer every day that those material and money-saving practices are *vital* practices in time of war!

TODAY the whole picture of buying and applying motors has changed. Note at the left how much you can save for your country *and yourself* with high and single-speed motors made flexible by Texrope Drives.

As America's only builder of both electric motors and V-belt drives, Allis-Chalmers has long advocated the proper combining of motor and V-belt drive.

And today you benefit from Allis-Chalmers' vast, pioneering experience in this field when you ask for and get the *right* combination of Lo-Maintenance Motor and Texrope Drive! Call your nearby district office. Or write ALLIS-CHALMERS MFG. CO. MILWAUKEE, WISCONSIN.

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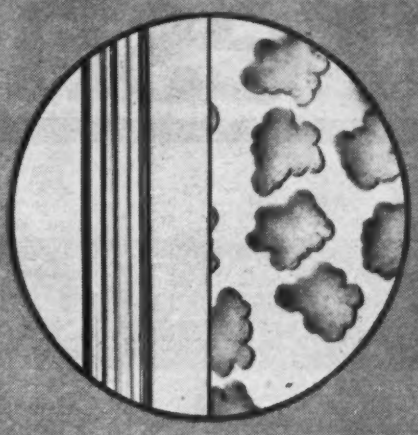

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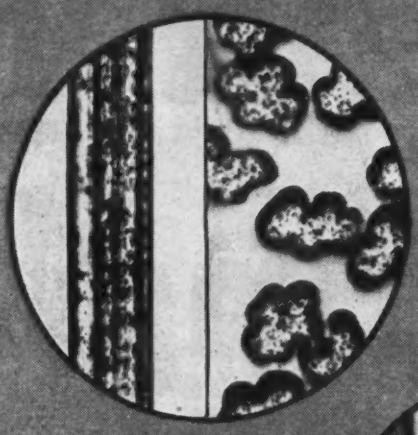

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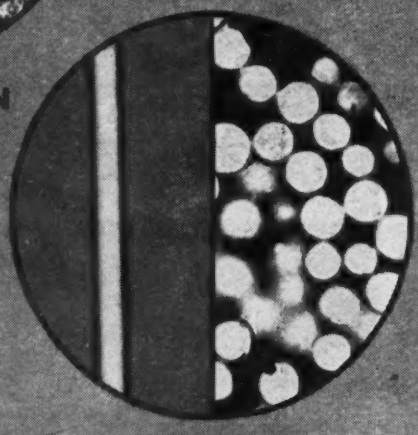

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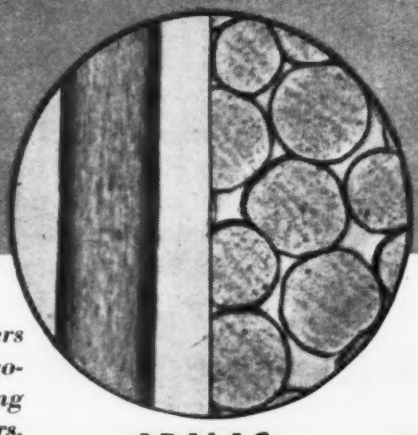

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OUR *Experience* WITH THESE AND OTHER SYNTHETICS CAN HELP YOU

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The yarns and fabrics made from these and other synthetic fibers will be used in increasingly greater amounts after the war. Saco-Lowell engineers can help you now in planning and developing the proper organization for the efficient processing of these fibers.

Saco-Lowell **has designed the specialized equipment necessary to blend, prepare and spin many of these fibers in simple or complex combinations. Since the number of blends which can be made from these new fibers is almost unlimited, Saco-Lowell machinery has been built with a flexibility which makes it possible to make good yarn from any of these synthetics. ¶At present we can only *tell* you about the things we have been doing . . . and urge you to make plans for tomorrow. If you are planning to enter this new and rapidly growing field, our engineers can be of great assistance to you *now* in helping you select the proper organization and equipment.**

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—the new COMPASS STEEL CABLE transmission belt for heavy-duty service

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Built on the same patented principle that made the Compass world-famous for handling industry's heaviest loads, this new belt is sinewed with endless multiple-strand steel cables — in place of cotton cables or cord — embedded in highest quality synthetic rubber and enclosed in a heavy-duty fabric envelope.

This construction gives far greater power capacity than has ever been obtainable in transmission belting heretofore. The new Steel Cable Compass has many times greater strength than the heaviest duty Compass Cord belt. It will handle far heavier loads, withstand much higher tensions, making possible more compact drives, with smaller belts and pulleys.

Beyond this it is the first truly *stretchless* belt — a belt that remains constant in length, free from shrink in storage. Once fitted to a drive, you should seldom, if ever, have to touch the take-up. It is more flexible than any fabric-bodied belt and has a far longer life-expectancy.

Remember, only Goodyear has years of experience in building Compass-type belts. With this Goodyear combines the knowledge gained in developing the first successful steel cable conveyor and V belts — a priceless knowledge that insures tested quality.

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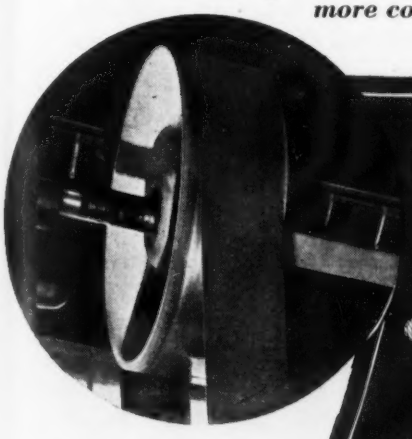

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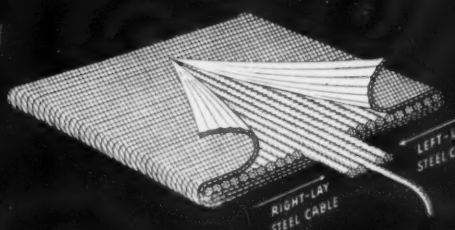

The Goodyear Compass Steel Cable belt is bodied with multi-strand airplane-type cable spiralled continuously without a splice. Cable on opposing sides of belt axis is twisted in opposite directions to insure true running.

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Here is high-speed uniform heat—precision controlled and directed—offering tremendous possibilities for new products and new processes . . . for faster, more efficient production . . .

That's Megatherm—high-frequency electronic heating at its best—a modern tool with uses as broad as industry itself.

In the processing of plastics, foods, drugs, candy, paper, textiles, wood products, and in printing, book-binding . . . in the surface hardening of metals, brazing, soldering, and annealing . . . to mention only a few of an endless number of possible applications.

Megatherm is available in a range of compact, efficient models—powers from 3 kilowatts to 100 kilowatts. One of these models is right for your work.

Now, while you are planning for the future, is the time to get the story on Megatherm—learn how it will speed your production—cut your costs—make new designs—new products and new materials possible. Write for data.

FEDERAL TELEPHONE & RADIO — FTR

Federal Telephone and Radio Corporation

*Reg. U. S. Pat. Office

INDUSTRIAL ELECTRONICS DIVISION

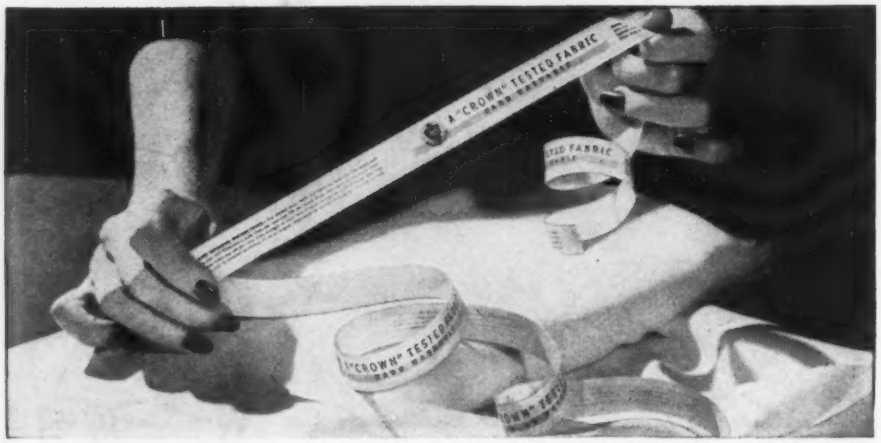
AN IT&T ASSOCIATE

Newark 1, N. J.

RAYON REPORTS

Published Monthly by American Viscose Corporation, New York, N. Y. DECEMBER, 1944

CONVERTER USING NEW PIECE GOODS IDENTIFICATION



Benrose Fabrics is now identifying its CROWN Tested piece goods by a new method that has been made available by the American Viscose Corporation. The new identification is accomplished by inserting a tape at the point of winding. The tape, a narrow strip of paper, runs continuously through the bolt.

The benefits of this tape method of identification are obvious, for it means that every purchase from a bolt is clearly and completely "tagged." The tape carries information and instructions according to the CROWN Tested three-tag system, and may also include the fabric name if the converter so desires.

CARDING RAYON STAPLE

Worsted card operating on rayon staple fiber in the Textile Research Department of American Viscose Corporation, Marcus Hook, Pa. On this and other types of regular commercial machinery provided for the purpose, the research staff carries out extensive experimental work leading toward improvements in rayon products and fabrication methods, and the development of new yarns and fibers.

A. V. C. SPONSORS 4-H CONTEST

For the second year, the "Dress Review" conducted by the National 4-H Clubs is being sponsored by the American Viscose Corporation. Forty-two states are participating in the contest.

The girls make any garment that will fit into their own wardrobe . . . sportswear, street dresses, etc. One winner is chosen in each state. The prize is a trip to the National 4-H Congress, which is being held in Chicago this year during the first week in December.

Last year, there were 216,407 entrants; out of this number, 34,317 completed the contest.

BUY AT LEAST ONE EXTRA $100.00 BOND
During the Sixth War Loan

In the hope that a letter soon would be there
AMERICAN VISCOSE CORPORATION
Producer of CROWN* Rayon Yarns and Staple Fibers
MARCUS HOOK, PENNSYLVANIA

LETTERS TO ARMED SERVICES SUBJECT OF A. V. C. ADS

In its recent employee relations advertising, the American Viscose Corporation has attempted to promote more letter writing to members of the Armed Services. One advertisement dramatizes the loneliness our fighting men will feel on Christmas Day in an effort to persuade the home folks to write Christmas letters to all their friends and loved ones. It includes names of local employees in uniform as an aid in preparing a letter-writing list.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn or fiber.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN" TESTED
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION
Producer of
CROWN* *Rayon Yarns and Staple Fibers*

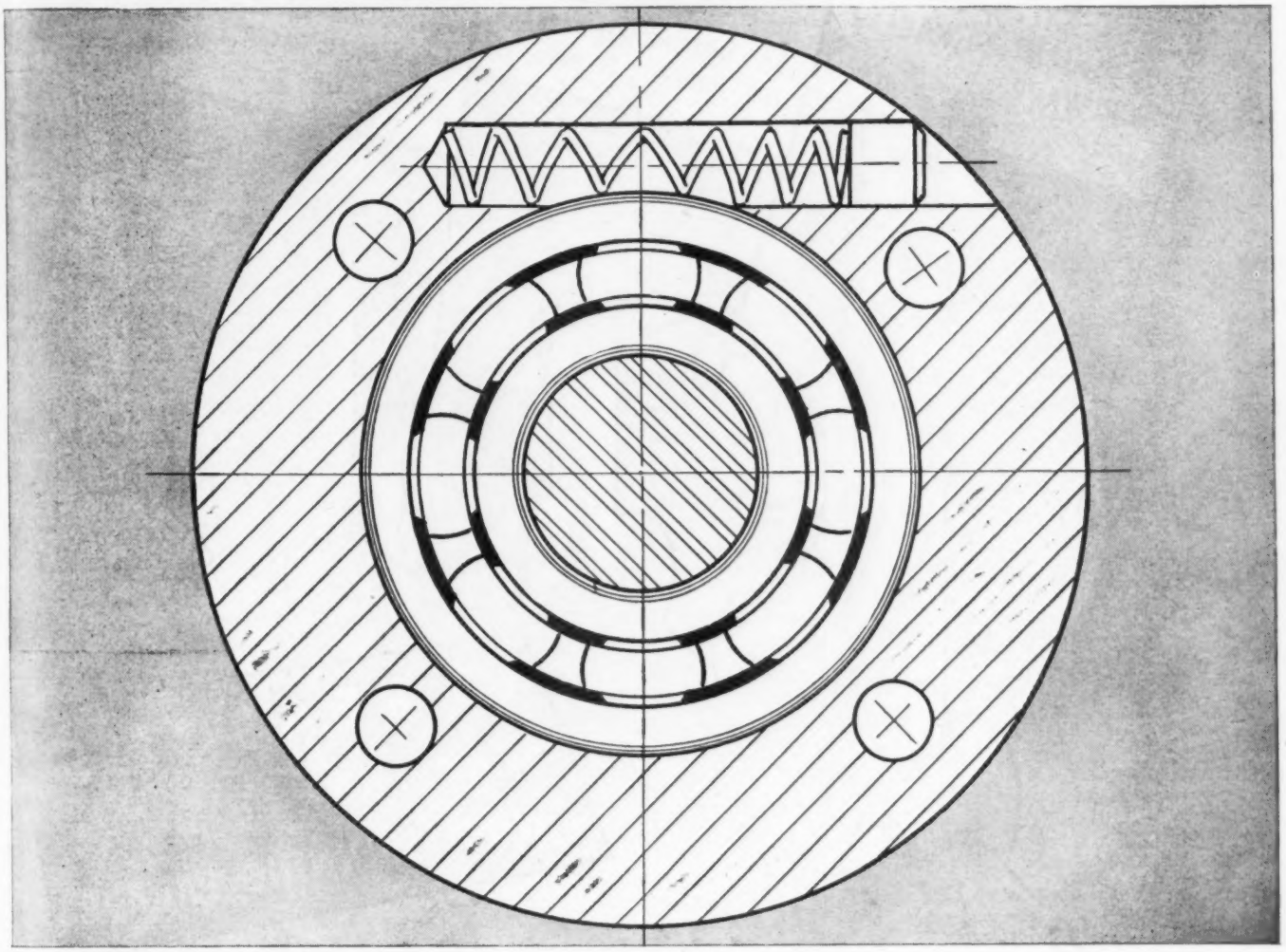
Sales Offices: 350 Fifth Avenue, N. Y. C. 1; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

*Reg. U. S. Pat. Off.

A Bearing Tip . . .

for your design notebook



When small ball bearings, often run at higher speeds, must be mounted loose in the housing, a spiral spring contacting the outer ring as shown above, is a simple and effective means of preventing excessive slippage, housing wear and resultant formation of iron oxide. When correctly proportioned the coils of the spring are distorted and impose a certain amount of radial pressure on the outer ring. While this does not prevent axial movement of the bearing it does have the effect of stopping the ring from excessive rotation in either direction. New Departure engineers will gladly give further details. Ask for our new series of novel yet practical bearing mounting ideas for specific condition problems. 3326

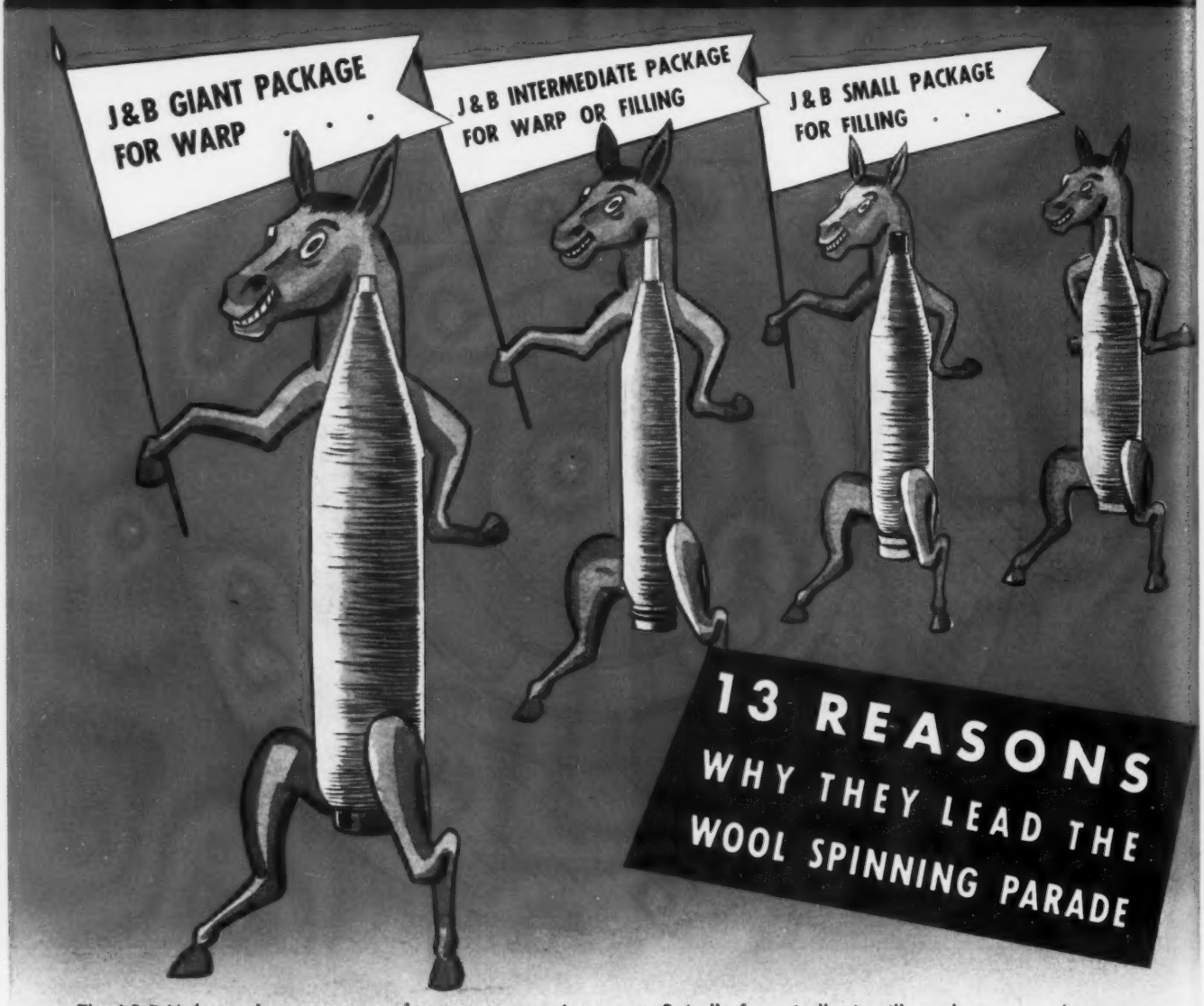
NEW DEPARTURE

BALL BEARINGS

NEW DEPARTURE • DIVISION OF GENERAL MOTORS CORPORATION • BRISTOL, CONNECTICUT

Sales Branches: DETROIT, G. M. Bldg., *Trinity 2-4700* • CHICAGO, 230 N. Michigan Ave., *State 5454* • LOS ANGELES, 5035 Gifford Ave., *Kimball 7161*

JOHNSON & BASSETT

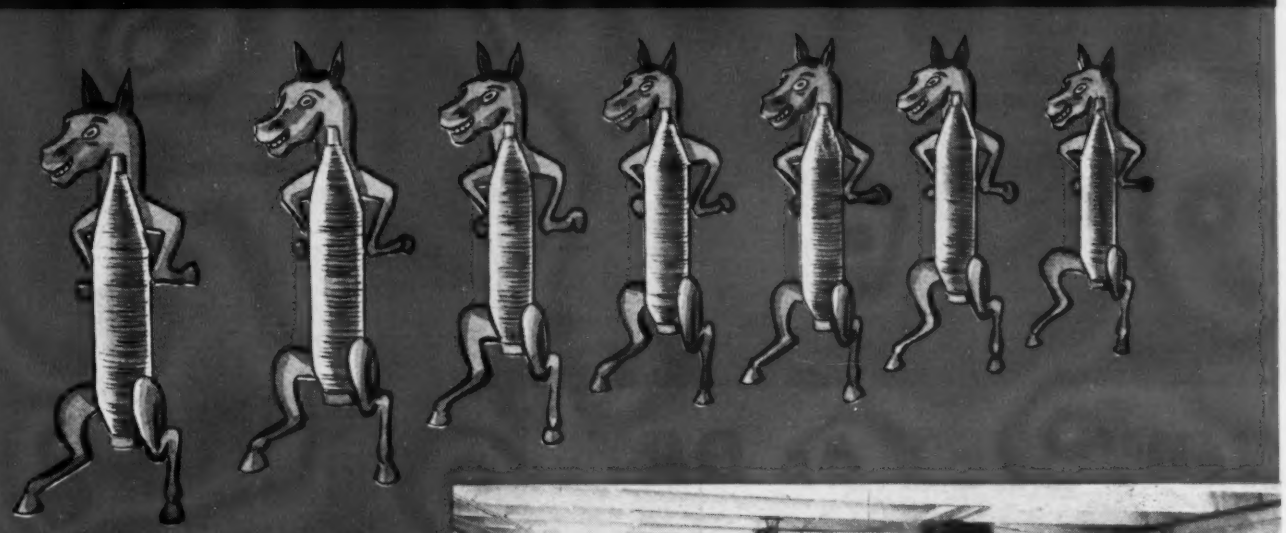

J&B GIANT PACKAGE FOR WARP
J&B INTERMEDIATE PACKAGE FOR WARP OR FILLING
J&B SMALL PACKAGE FOR FILLING
13 REASONS WHY THEY LEAD THE WOOL SPINNING PARADE

1. The J & B Mule produces a true woolen yarn — superior in strength, elasticity, loftiness, roundness and uniformity of size and twist to that produced by frame spinning.
2. It permits inspection of the thread.
3. It will handle a much coarser roving than a frame, thereby increasing production at the card by 15 to 20%.
4. It will successfully spin short staple roving which will not hold together on a frame.
5. It requires less horse power than a frame.
6. Spindle for spindle, it will produce as much yarn as a frame, due to a practical operating speed and negligible breakage.
7. The cost of the yarn produced is at least ½ that of yarn produced on a frame.
8. Its initial cost is several times less than that of frames with equal production.
9. Its cost of upkeep is exceptionally low.
10. The J & B filling package does not require rewinding for an automatic loom.

JOHNSON & BASSETT, INC.

ESTABLISHED IN 1870

Modernized MULES



Typical Installation of J & B Small Package and Giant Package Mules.

★

11 Changes for spinning different types of yarn on the J & B Mule are easily and quickly made.

12 Mule bobbins cost less than frame bobbins.

13 The J & B Mule requires less floor space per lb. of yarn produced than other methods of wool spinning.

FOR EXAMPLE: Take Reason No. 5:
One 300 spindle Giant Package Mule requires one 15 H.P. motor, whereas ring spinning equipment with comparable production capacity requires 40 H.P.

Take Reasons No. 6 and 7:
A 384 spindle Small Package Mule, 2¼" gauge, spins 240 lbs. of 3 run yarn in 8 hours, whereas four ring spinning frames in the same mill, with a total of 384 spindles, spin 256 lbs. But the cost of spinning the frame yarn is $17.60, whereas the cost of spinning the mule yarn is only $8.50. In the case of the Giant Package Mule versus ring spinning, the difference in labor cost is much greater.

Take Reason No. 8:
2 ring spinning frames of 120 spindles each, which will equal the production of one 300 spindle Giant Package Mule, costs $9,000.00 more than the latter, without figuring the cost of installation.

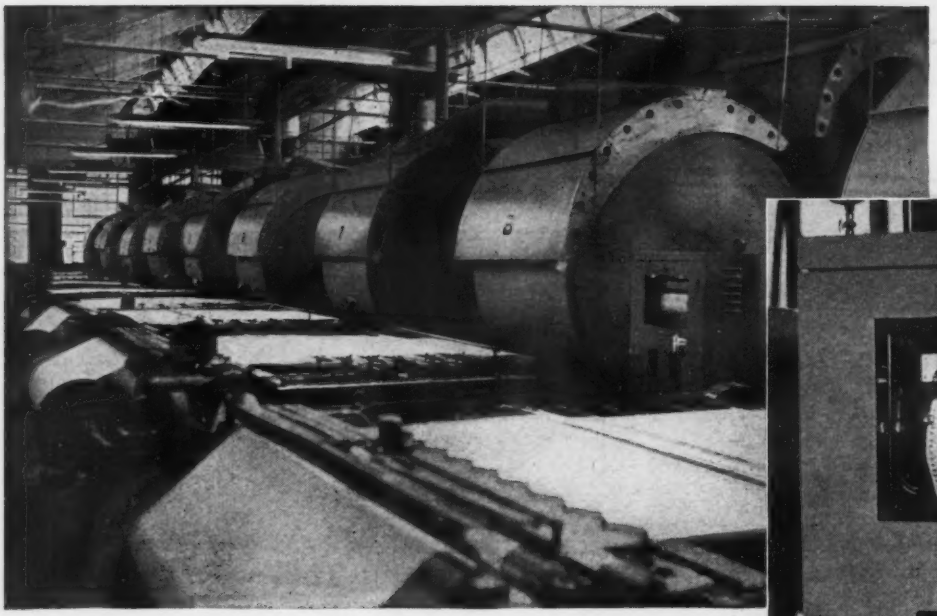
Take Reason No. 12:
Giant Package Mule Bobbins cost $144.25 per M, in lots of 10,000, whereas frame bobbins cost about $800.00 per M.

TELL US YOUR WOOL SPINNING PROBLEM AND LET US MAKE RECOMMENDATIONS.

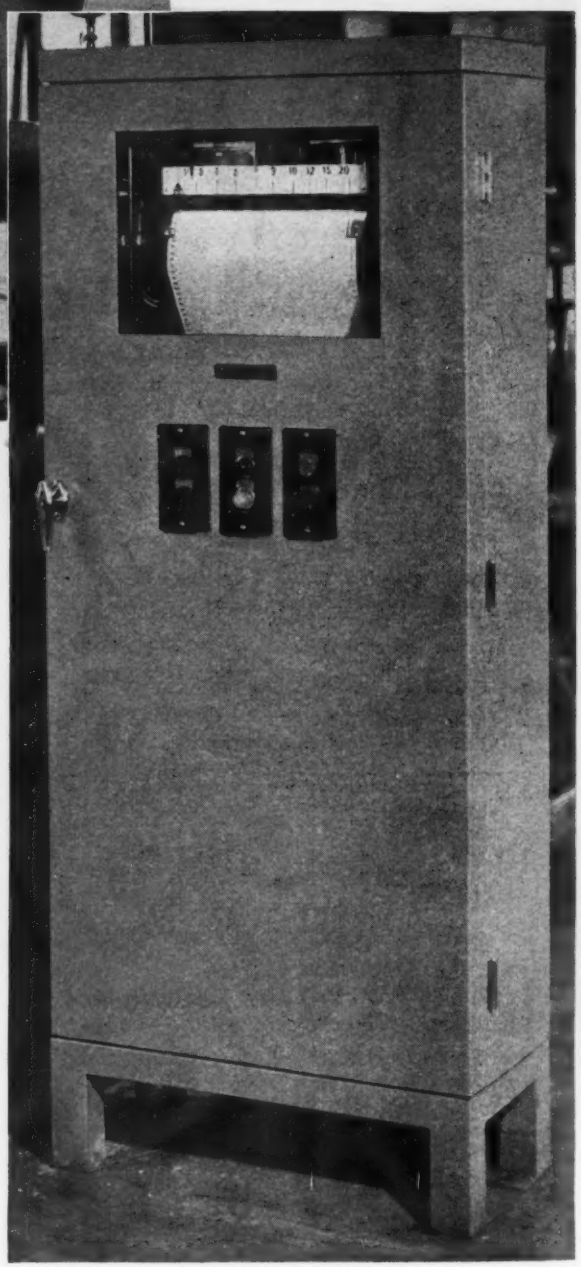
★

Spindle assembly which automatically adjusts itself to eccentric loads, preventing vibration and permitting high speeds and uniformity of yarn.

Worcester, Massachusetts, U. S. A.



Slashers at West Point Mfg. Company, West Point, Ga., are controlled by The Brown Moist-o-graph System.



HOW WET or DRY IS YOUR WARP?

Guessing moisture content is costly — *baked or dry warps* mean poor weaving, chafing, and excessive fly. Over-wet warps mean mildew and rust stains.

Where warps are running too dry or too wet, the Brown MOIST-o-GRAPH eliminates guesswork. It controls slasher speed to insure a uniformly level warp to meet your particular weave room requirements.

It measures, records and controls the exact moisture content, thereby giving you a better weaving warp which will increase weave room production.

Further, by maintaining the correct moisture content, the Brown MOIST-o-GRAPH Controller permits lower humidity in the weave room.

The Brown MOIST-o-GRAPH maintains the correct slasher speed, and makes a continuous and permanent chart record of moisture content within one-half of one percent. Ranges for cotton are 4% to 12% and for rayon 1% to 20%.

Users of Brown MOIST-o-GRAPH control systems have increased slasher speeds as much as 40%, and have noticeably increased weave room production. You can do likewise.

Write The Brown Instrument Company, a division of Minneapolis-Honeywell Regulator Company, 4509 Wayne Avenue, Philadelphia 44, Pennsylvania. Offices in all principal cities. 119 Peter Street, Toronto, Canada—Wadsworth Road, Perivale, Middlesex, England—Nybrokajen 7, Stockholm, Sweden.

BROWN MOIST-O-GRAPH

To Measure and Control is to Economize

SANDOZ PRESENTS *The color achievement of the month*

Ankle Bright BY INTERWOVEN

Whenever candles gleam, and presents are opened, socks by Interwoven are another tradition of the season. Colors by Sandoz play a part in this popular way of saying, "Merry Christmas."

The complete group of Sandoz Wool Colors, for instance, have proved especially satisfactory in meeting the exacting requirements of level dyeing and fastness.

Sandoz technicians, in thinking ahead with textiles, also developed the *Metomega Chrome* colors in a complete color range. Reducing boiling time by as much as 50%, they speed the development of correct shading.

Likewise, in chemical auxiliaries, Sandoz can help you. *Levana*, for instance, protects tensile strength and prevents shrinking or felting in dyeing.

To assist in meeting your needs for acid, chrome or direct dyes, and chemical auxiliaries for all natural or synthetic fibres, Sandoz application laboratories are maintained in New York, Boston, Philadelphia, Charlotte, Los Angeles and Toronto, with stocks in those cities. Other branches: Chicago, Paterson, Providence.

Watch for another "Color Achievement" next month. Meantime, we join in wishing you all the best and brightest in Christmas cheer.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

SANDOZ *thinks ahead with textiles*

SANDOZ

TUBES FOR DYEING OR TWISTING ON...

The Rotary Traverse Winder

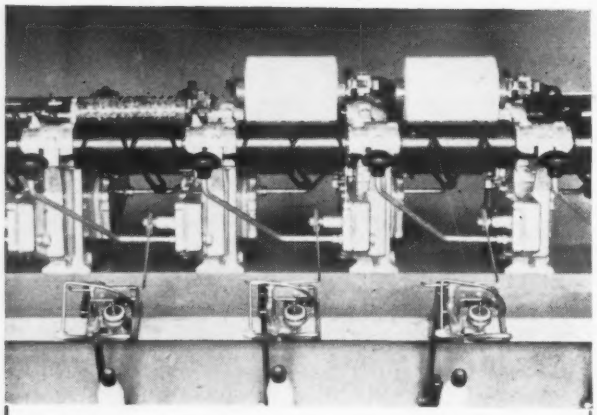
The Roto-Coner*, the winder with the exclusive Rotary Traverse, may be equipped for the production of dye tubes or twister tubes, as well as for knitting or warping packages. There are four types of traverses, and each one is standard for its respective type of work.

Either a two-turn or three-turn traverse, with uniform spacing of groove crossings, is used for tubing. Maximum winding speeds are obtained. Any desired density of package may be wound by making simple adjustments in speed and tension.

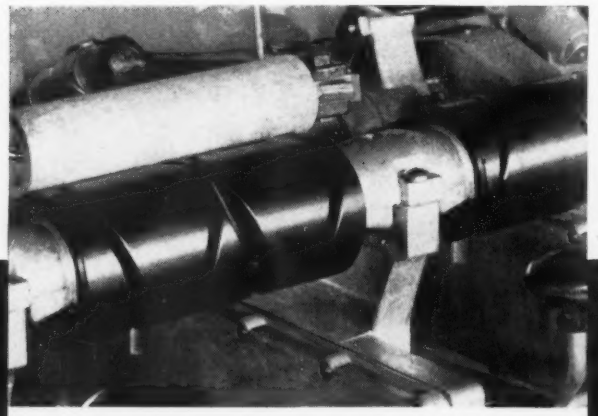
Almost any type of dye tube can be accommodated. Yarn to be twisted is wound onto tubes which rotate on the bare winding spindle; these tubes will fit the twister creel without alteration of the creel spindle.

Universal Winding Company

PROVIDENCE BOSTON UTICA PHILADELPHIA
CHARLOTTE ATLANTA



Dye packages wound on the Roto-Coner* are free from hard ends. The groove in the Rotary Traverse reverses the yarn quickly at each end of the package; there is no dwell, no tendency for the yarn to roll inward at the base end. As a result, dye penetration is even throughout the package.



Twister tubes are wound on the Roto-Coner* at 550 yards per minute — with every inch of yarn carefully inspected by efficient Precision Cleaners which are easily set with perfect uniformity from spindle to spindle. Higher twisting speeds are thus made possible — in some cases as much as 25% higher.

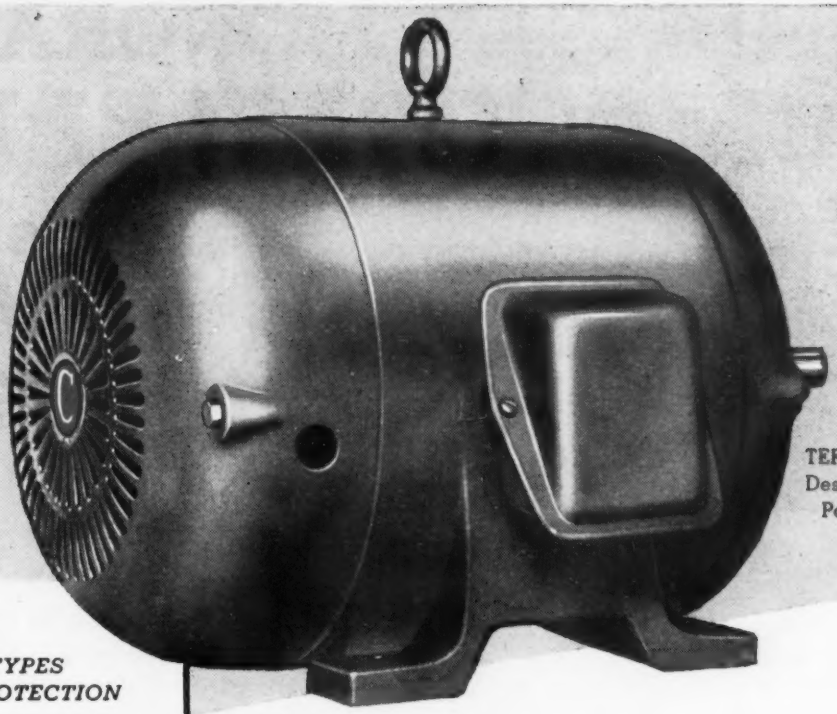
*Reg. U. S. Pat. Off.

ROTO-CONER

LEESONA

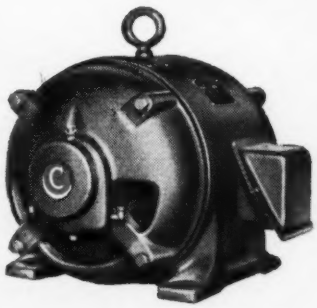
The Rotary Traverse Winder

WOOD CONES • PAPER CONES PARALLEL TUBES

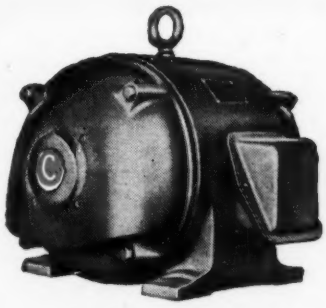


TEFC—Protects Against Destructive Dust, Grit, Powdered Materials

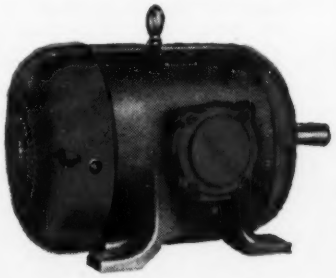
3 OTHER TYPES OF PROTECTION



Form J
General Purpose Application



Splash Proof Protection



Century Explosion Proof Motor

FOR PROTECTION Against Atmospheres That Contain Acid and Alkali Fumes – Abrasive Dusts

Use Century TEFC Motors

Century Totally Enclosed Fan Cooled motors are designed to operate continuously in abnormal atmospheres found in chemical and processing plants.

They provide protection against atmospheres containing acid and alkali fumes, oil or animal fats, coolant solutions, metallic, abrasive, and other destructive dusts, grit, and powders.

Where atmospheres are charged with high concentrations of destructive fumes, Century TEFC motors can be provided with special insulations.

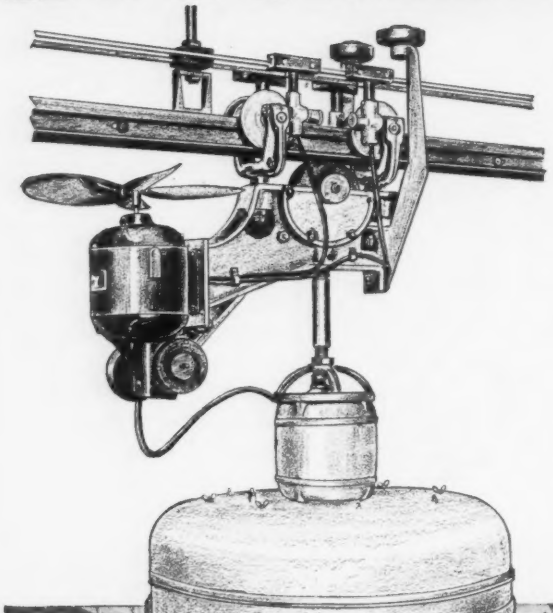
Why not find out how Century TEFC motors can help you avoid production delays and help achieve continuous, economical performance? Call in a Century engineer.

Century C MOTORS

CENTURY ELECTRIC CO.
1806 Pine Street, St. Louis 3, Missouri
Offices and Stock Points in Principal Cities

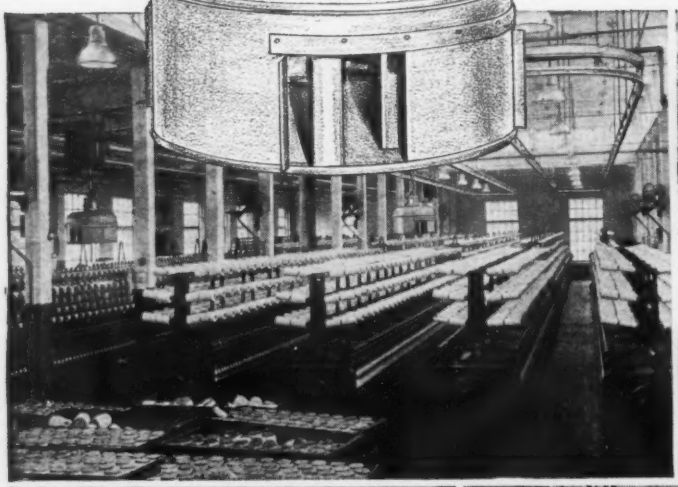
383

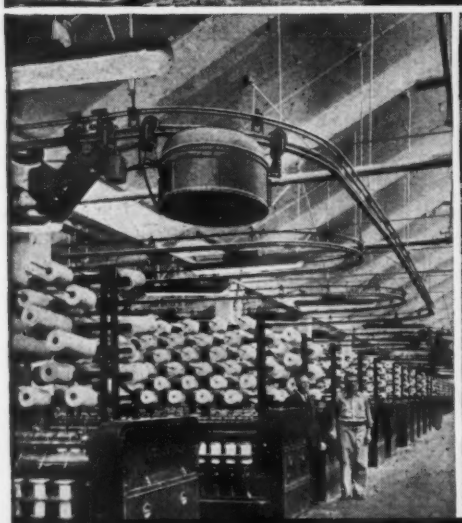
AMERICAN MONORAIL
AUTOMATIC CLEANERS

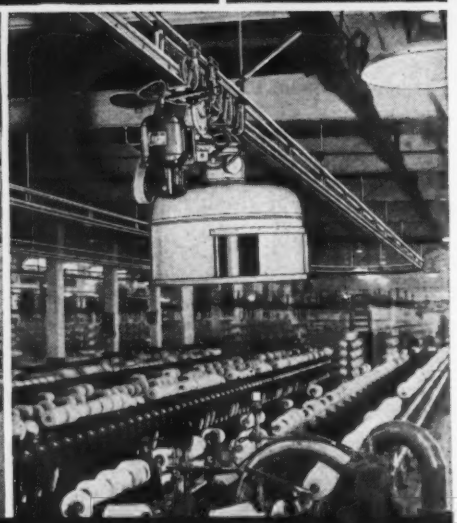


. . . CLEANS WITH A *Swirling* COLUMN OF AIR

LET an American MonoRail Engineer tell you the complete story of controlled Cyclonic Cleaning. Write for copy of the new 24 page book explaining many cost saving advantages.







1. Automatic Cleaning over winders, twisters, spoolers and warpers produces cleaner yarn with less breakage and stoppage on the looms.
2. Controlled downward swirl of the air currents prevents blowing of lint from one machine to another during cleaning.
3. Automatic devices can be installed to reduce cleaning velocity while blower travels over idle machines. This prevents unravelling of roving or yarn while keeping frames free from lint.
4. American MonoRail Cleaners can be assembled by mounting the blower as a trailer, in a variety of arrangements to overcome unusually low ceiling conditions at no extra cost.

THE AMERICAN MONORAIL COMPANY
13108 ATHENS AVENUE CLEVELAND 7, OHIO

"Gentlemen, be seated..." ON GEON-COATED CHAIR COVERING

THOSE office chairs in the picture are covered with fabric that has been coated with GEON, the *new* raw material with so many applications in the textile field. And, of course, as upholstery material GEON is not limited to office furniture. In bus, railroad, and airplane service GEON, either as a coating or sheet, can add years to the normal life of seat coverings. When peace permits, GEON-treated upholstery—and draperies and awnings and wall coverings and floor coverings and many other domestic products—will bring beauty plus economy to American homes.

GEON'S unusual wear resistance is only one of its advantages in the field of seat coverings. For example, it's washable—water has no effect on it—so seats may be kept clean. It can be made in a wide range of attractive colors. Its resistance to age and sunlight means that it won't crack and become unsightly. Foods, chemicals, acids have no effect on GEON. It won't become sticky when warm, or brittle when cold. Safety is increased because GEON resists flame.

In other textile applications GEON has proved itself a superior fabric coating for rainwear. Its mildew resistance has made possible numerous invaluable war applications in the tropics. Products made from GEON may be used in a dozen—or fifty—ways in the home; shower curtains, clothing bags, tablecloths, ironing pads, food bowl covers—the list seems almost limitless.

Right now the use of GEON is subject to allocation by the War Production Board. Our development staff and laboratory facilities are available to help you work out any special problems or applications. For more complete information, write Department H-3, Chemical Division, 324 Rose Building, E. Ninth and Prospect, Cleveland 15, Ohio.

Geon
Polyvinyl Materials

CHEMICAL DIVISION
THE B. F. GOODRICH COMPANY
ROSE BUILDING, E. NINTH & PROSPECT, CLEVELAND 15, OHIO

VERSA *tility*

Every day, Industrial's textile experts and technicians are discovering new possibilities with their brain-child, "The Continuous Process."

On the one hand, we are producing rayon yarns of a denier sturdy enough for super-strength TIRE CORD—

***TYRON** is its name.

Strong, uniform, knot free yarn is the secret of good tire cord.

"Continuous Process" machines, Industrial's exclusive development, produce it perfectly.

and . . . . . On the other hand, the "Continuous Process" is capable of making a gossamer yarn for the daintiest cobweb of a fabric. This yarn, in textile sizes, is the famous

*Spun-lo

and . . . . . Strong, uniform, knotfree yarn is the secret of an exquisite dress material. The "Continuous Process" produces that, too. Not much now (war work, you know) but this is the time to learn the characteristics of "Continuous Process" *Spun-lo.

Industrial
RAYON CORPORATION
MAKERS OF
Spun-lo and TYRON
BY THE "Continuous Process"

*Reg. U. S. Pat. Off.

CLEVELAND, OHIO • *New York Office, 500 Fifth Avenue*

STAINLESS STEEL SHEETS

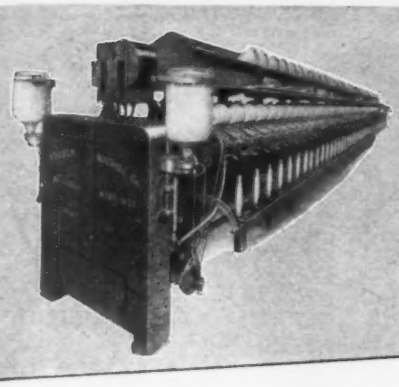
Prompt Service for the TEXTILE INDUSTRY

All types and formulae. Consult our Technical Service for your Specifications requirements.

ROLLING STAINLESS STEEL EXCLUSIVELY

EASTERN STAINLESS STEEL CORP.

BALTIMORE 3, MARYLAND, U. S. A.

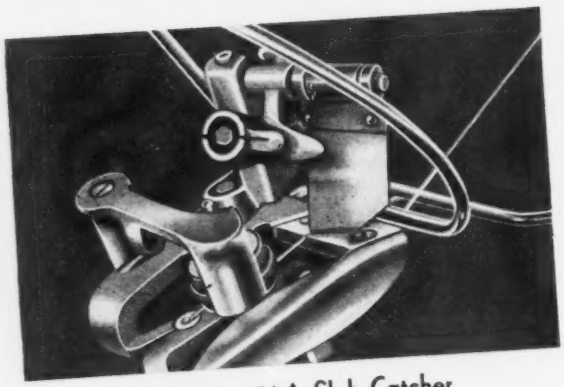


FOSTER MODEL 102

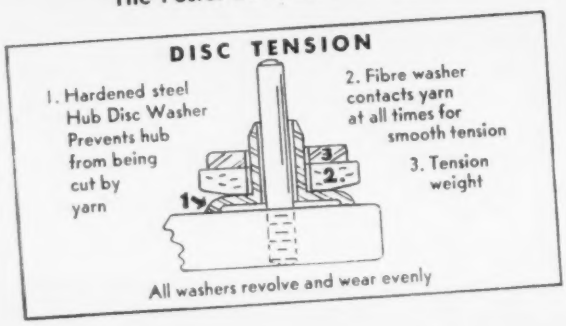
6 Reasons WHY IT IS IDEAL FOR WINDING *Worsted Yarns*

WHETHER it is used to prepare inspected yarn for knitting, warping, dyeing, or for twister or doubler supply, the Foster Model 102 Winder has important advantages, which make it ideal for the purpose, as follows:

6" TRAVERSE CONE 7" TRAVERSE CONE



The Foster 51A Slub Catcher


DISC TENSION
1. Hardened steel Hub Disc Washer Prevents hub from being cut by yarn
2. Fibre washer contacts yarn at all times for smooth tension
3. Tension weight
1
2
3
All washers revolve and wear evenly

1 7" TRAVERSE CONE, IF DESIRED, containing 10% more yarn than a 6" cone. It reduces doffing at the winder and, being a larger supply, makes subsequent operations more economical.

2 SELF THREADING AND SELF CLEANING SLUB CATCHING ATTACHMENTS (several different types), which make an important contribution to increased production and a better yarn.

3 MINIMUM TO MAXIMUM TENSION. Even with minimum tension, yarn cannot jump out of guides. Minimum tension reduces breakage when winding soft twist yarns. Tension is increased by adding weights to tension disc.

4 SUPERIOR TENSION DEVICES, reinforced at all possible points of wear, which produce even tension on the yarn.

5 HIGH WINDING SPEED. While the practicable speed for different kinds of worsted yarns varies between 300 and 650 y. p. m., it is uniformly higher with this machine than with older models. Combined with other features, it contributes to twice the production at two-thirds the cost.

6 ANY ANGLE OF WIND, from 9° to 18°, can be obtained by changing 4 small gears in the head end. This flexibility is important when running a variety of counts and types, since the wrong angle of wind for a given yarn will produce an unsatisfactory cone.

Send for Bulletin No. A-91

FOSTER MACHINE COMPANY

WESTFIELD, MASS., Southern Office, Johnston Bldg., Charlotte, N. C.

IT HAD TO BE DONE ...AND WE DID IT!

Early in 1940 the Navy Department began to visualize a possible shortage of steel plate. Reinforced concrete tanks for fuel storage were suggested if they could be so lined as to prevent seepage of the gasoline.

BWH engineers solved the problem by lining the tanks with a thin sheet of synthetic rubber, covering walls, floors and columns like wall paper. This not only prevented seepage but protected the gasoline from a drop in octane rating.

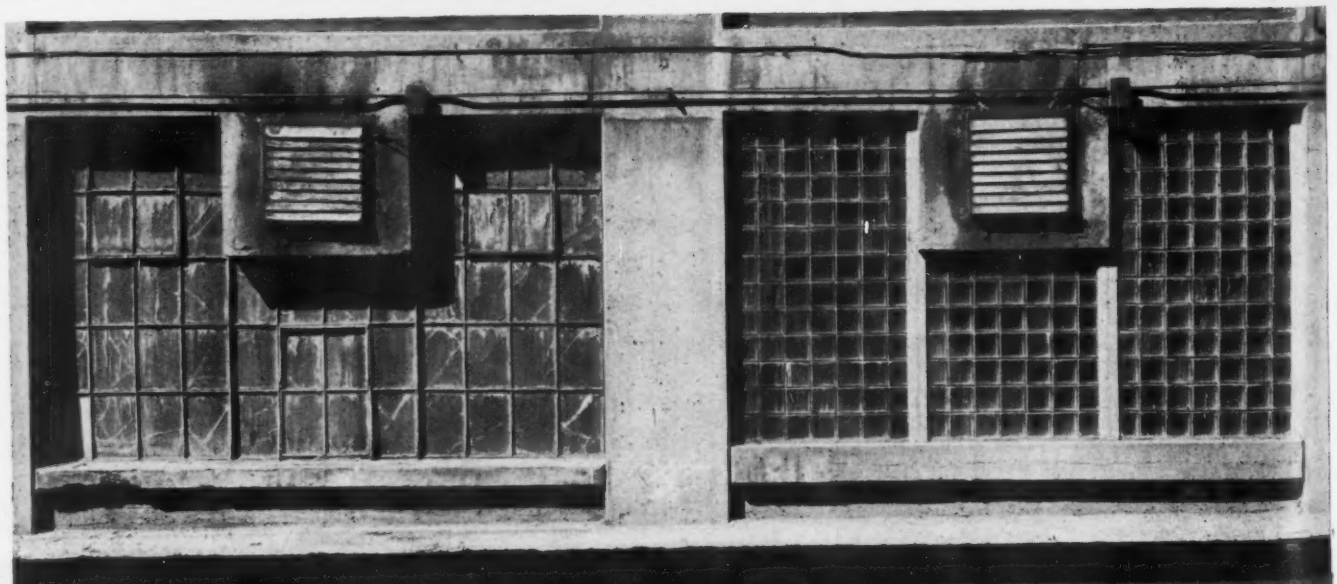
Another example of BWH ingenuity and resourcefulness in applying rubber to a difficult problem.

BOSTON WOVEN HOSE & RUBBER COMPANY

WORKS: CAMBRIDGE, MASS., U.S.A. P.O. BOX 1071, BOSTON 3, MASS., U.S.A.

MORE LIGHT...LESS HEATING

In this plant, sash corrosion troubles were solved by replacement with PC Glass Blocks. Just take out the old sash . . . scrap the metal . . . install new chases if necessary and fill the openings with PC Glass Blocks. Then better lighting costs less.



Many textile manufacturers have found that replacing ordinary sash with PC Glass Blocks results in greater operating efficiency, less cleaning and maintenance cost—worthwhile economy. Even under the extreme conditions encountered in dyehouses, where high acid content atmospheres and excessive humidity result from washing, dyeing and bleaching, the glass block panels do not pit, check, rot or crack. In fact, many an installation of PC Glass Blocks has paid for itself out of savings on cleaning and maintenance costs. Other advantages include privacy, heat savings, exclusion of gritty dust, less frequent need for repairs to equipment.

AND CLEANING COSTS...

WITH PC Glass Blocks

HOSIERY MILLS, with their finely-adjusted machinery, can't take any chance with temperature changes. So many hosiery plants are air-conditioned. To help air-conditioning equipment keep temperature and humidity levels within close limits—and to lessen the load on that equipment—many plants are fitted with big PC Glass Block panels.

IN many big textile mills, large panels of PC Glass Blocks do more than supply ample light.

They eliminate sweating or condensation, help maintain desired temperature and humidity levels.

They provide plenty of clear diffused daylight, without glare near outer walls or gloom in more remote regions. Their insulating properties decrease heat transmission into and out of the building. They can be quickly and easily cleaned.

It will pay you to have full information on PC Glass Blocks. For when you remodel or build, you will be interested in the beauty, efficiency and economy you get with PC Glass Blocks. Just fill in and mail the convenient coupon and you will receive our free book which tells how PC Glass Blocks can save you time and money.

PITTSBURGH CORNING CORPORATION
632 DUQUESNE WAY · PITTSBURGH 22, PENNA.

PITTSBURGH PC CORNING

GLASS BLOCKS

Distributed by

PITTSBURGH PLATE GLASS COMPANY

and by W. P. Fuller & Co. on the Pacific Coast

Pittsburgh Corning Corporation—Room 703
632 Duquesne Way, Pittsburgh 22, Pa.

Gentlemen:

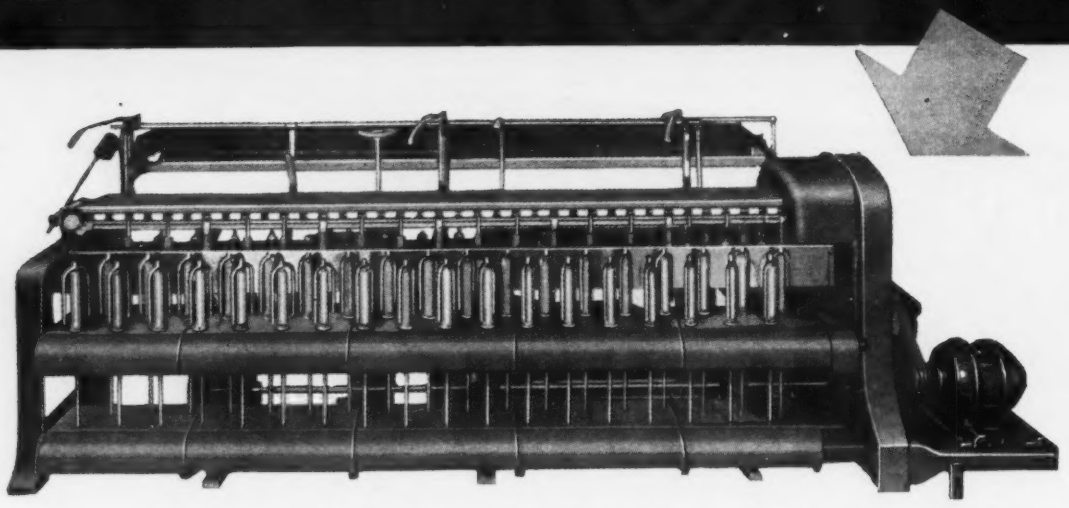
Please send me the free, illustrated book that tells how PC Glass Blocks have been used successfully in many industrial plants.

Name_____

Address_____

City_____ State_____

H & B HIGH-DRAFT ROVING FRAME



Put it on your PREFERRED LIST for After the War!

ONE OF THESE MACHINES will replace two or three conventional speed frames. It is sturdy and of modern design. Mechanical features include the following:

Exceptionally strong differential gearing ... draft changes quickly made ... simplified builder, easily adjustable ... articulated quiet chain bobbin shaft drive ... superior finish, including polished non-rusting metallic clearer covers ... single or double sliver lifting rolls ... angle iron creels.

The frame was specially designed to accommodate our High-Draft Roving System, 4 or 5 roll, with Patented Scroll Condenser. This system will produce 3.00 to 6.00 hank roving from 50 to 60 grain sliver in ONE OPERATION. It is drafting cotton up to 30 on speeders and up to 16 on intermediates. With mixtures, such as rayon and cotton or rayon and wool, some installations are drafting as high as 48 in one operation.

Our Bakelite Patented Scroll Condenser has greatly simplified high drafting of sliver. It eliminates static and prevents the flaring and spreading of the fibres by condensing them into a compact sliver without disturbing parallelization, and gives just enough false twist to allow better control in the drafting zone.

The H & B High-Draft Roving Frame not only greatly reduces the investment required in the card room, but also frequently increases production as compared with the equipment it replaces and invariably reduces manufacturing cost. This reduction has been as much as 6/10 of one cent. per lb. of yarn.

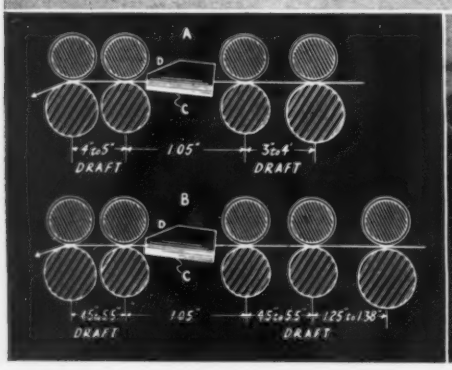
Put this frame on your preferred list for after the war and let us know about your plans NOW, so you won't have to wait too long for delivery after we are permitted to accept orders for textile machinery.

★

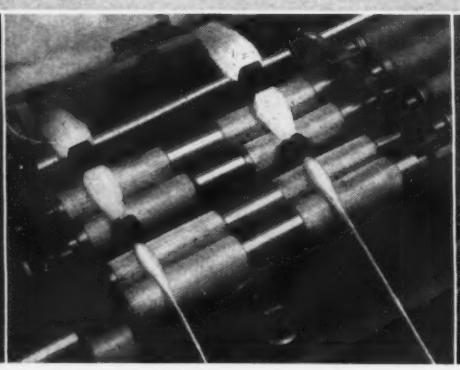
H & B AMERICAN MACHINE CO.
PLANT AT PAWTUCKET, RHODE ISLAND

Boston Office, 161 Devonshire Street; Charlotte Office, 1201-3 Johnston Bldg., Atlanta Office, 815 Citizens & Southern National Bank Bldg.; Export Dept., United States Machinery Co., 115 Broad Street, New York, U. S. A.

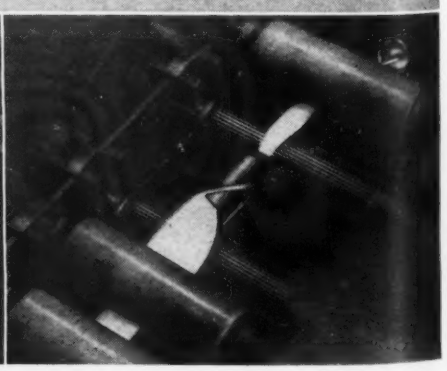
Diagrams showing drafts obtainable with 4 Roll and 5 Roll High-Draft Roving Systems

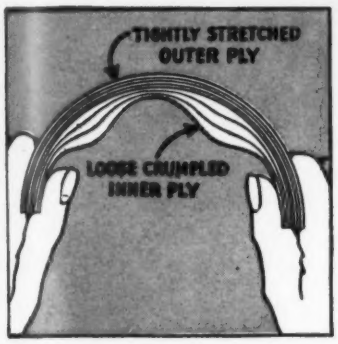


4 Roll High-Draft Roving System with Patented Scroll Condenser



5 Roll High-Draft Roving System with Patented Scroll Condenser





Try this yourself to illustrate what happens when your belts lack Compensation. A pad of paper, held firmly and bent, has buckling sheets on the inside of the curve. This shows lack of equal tensions and illustrates why the plies of conventional belt "bootleg."

– with its fatigue-relieving Strength Members –
gives you longer belt life, more power at the Point of Production

The Compensation Principle makes every ply work under equal stress—and prolongs the life of belts made from today's synthetic rubbers. You no longer need penalize your production by constant alternating of "stretch and buckle" stresses which, in ordinary belt, cause ply rupture as the belt goes round the pulley. Look at the diagram below which illustrates the difference between ordinary belt and Compensated Belt behavior under curve load. Note how Compensation—a patented and exclusive MANHATTAN development—*equalizes ply stresses*, prevents these destructive alternations of "stretch and buckle." Note how smoothly and uniformly the Compensated plies flex around the curve—providing fatigue relief for "war" rubber.

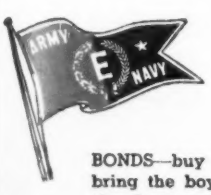
The amazing service you get is the result of MANHATTAN'S specially designed Strength Members so laid in FLEXLASTICS* that you get a truly Compensated Construction—flexible, longer-lived, with high overload capacity and capable of running over smaller pulleys without danger of ply separation or rupture of outside plies.

This principle of Compensation was developed for Condor Compensated Transmission Belt but is now also incorporated in MANHATTAN Conveyor Belts to increase service life where small end pulleys are used.

Users report 3 to 4 times longer fastener life. A paper mill reports a 9-year-old Compensated Belt "still performing like new." "100% more starting load capacity without appreciable belt slip," is still another comment.

Compensate yourself three ways—safeguard production, get longer belt life, increase power transmission efficiency with this revolutionary Compensation Principle in MANHATTAN Belts.

The term FLEXLASTICS is a MANHATTAN Trade Mark. Only MANHATTAN can make FLEXLASTICS



BONDS—buy more to bring the boys down the home stretch.

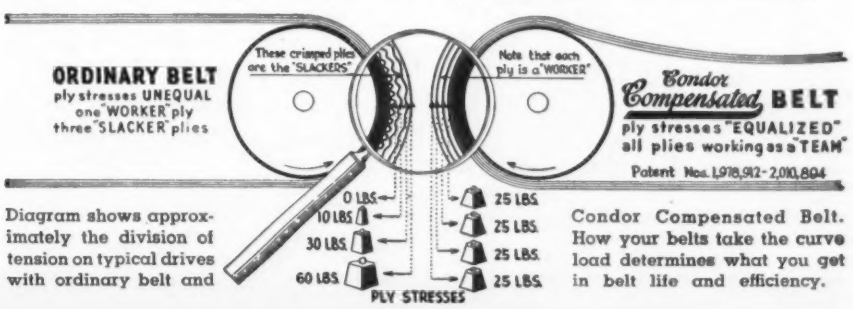


Diagram shows approximately the division of tension on typical drives with ordinary belt and Condor Compensated Belt. How your belts take the curve load determines what you get in belt life and efficiency.

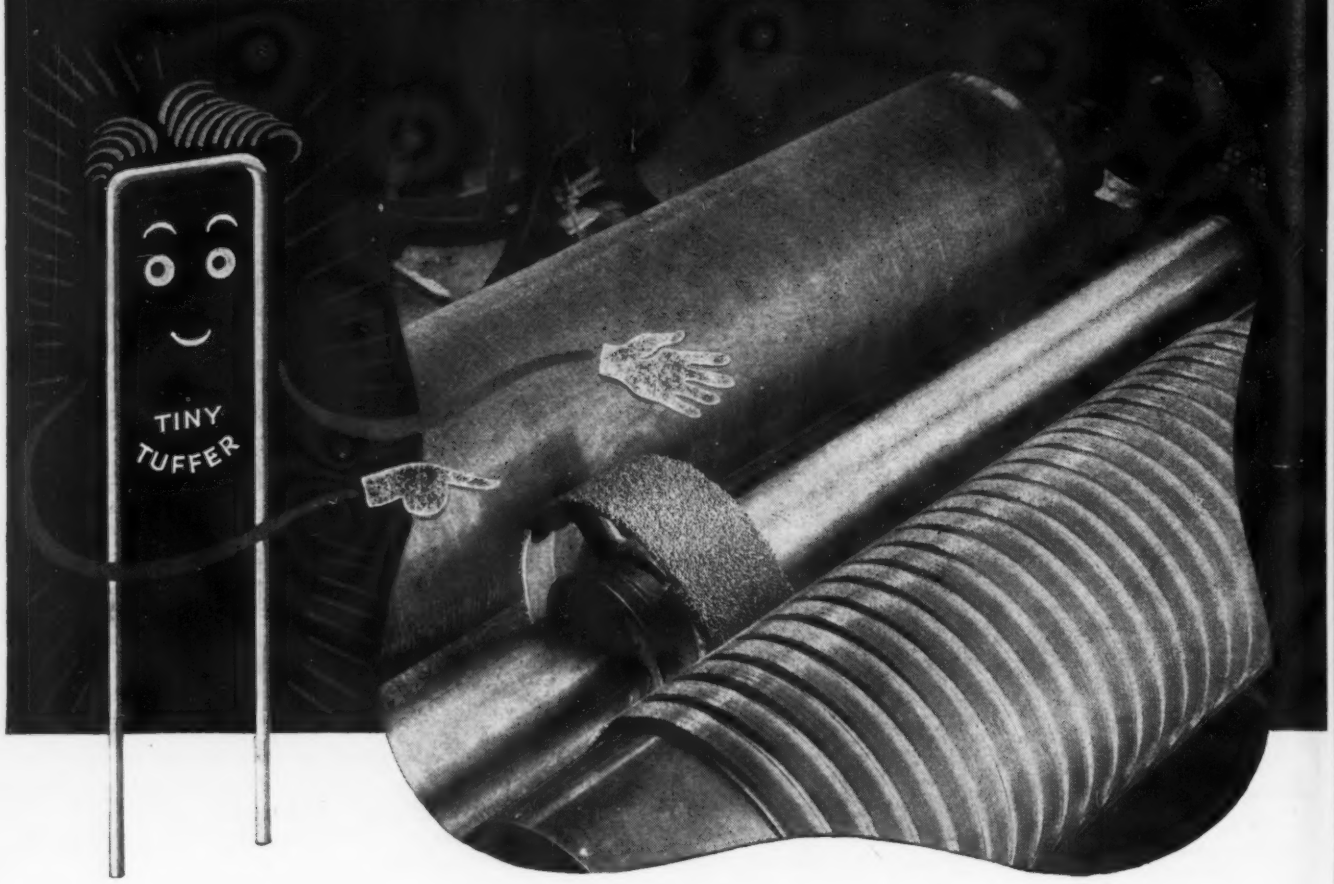
KEEP AHEAD WITH

MANHATTAN

THE MANHATTAN RUBBER MANUFACTURING DIVISION
OF RAYBESTOS-MANHATTAN, INC.
EXECUTIVE OFFICES PASSAIC, NEW JERSEY

TUFFERIZED Card Clothing

stays on the job with less grinding



If you want to increase production and lower costs in the card room, try Tufferized Card Clothing.

It is made from the finest steel wire . . . . especially tempered for toughness and flexibility, yet it takes grinding easily to sharp, clean points.

Because it is so accurately formed and placed in the foundation, Tufferized Card Clothing is easier to strip . . . and there is less danger of injuring or dulling the points. This means fewer grindings, more production and lower carding costs.

Your best bet is to *standardize* on TUFFER.

TUFFER CARD CLOTHING

TUFFER PRODUCTS

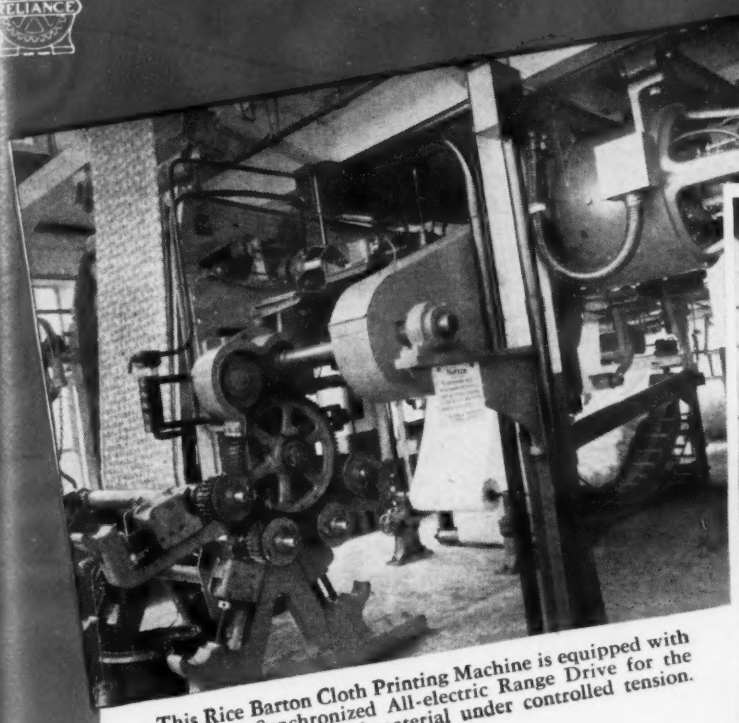
Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

HOWARD BROS. MFG. CO.

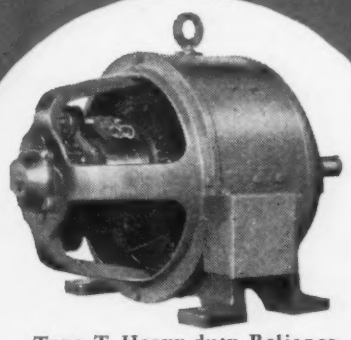
WORCESTER, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Dallas **Canadian Agents:** Colwool Accessories, Ltd., Toronto 2

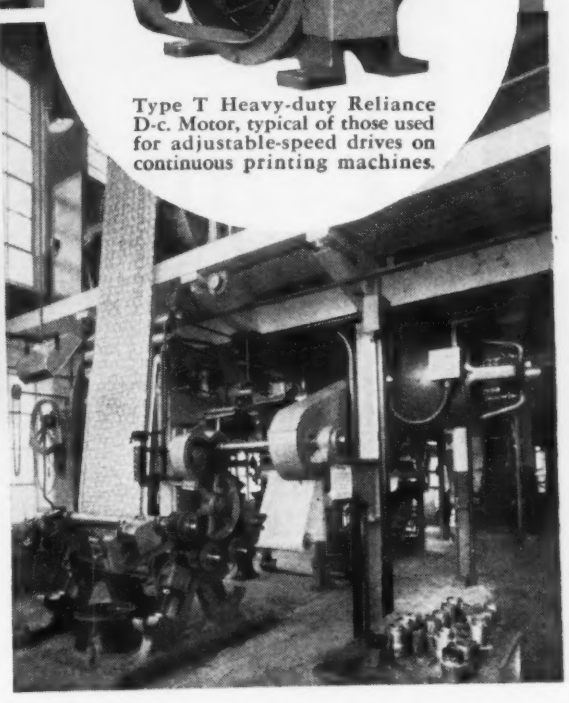
"MOTOR-DRIVE IS MORE THAN POWER"



This Rice Barton Cloth Printing Machine is equipped with Reliance Synchronized All-electric Range Drive for the continuous feeding of material under controlled tension.



Type T Heavy-duty Reliance D-c. Motor, typical of those used for adjustable-speed drives on continuous printing machines.



Top Quality Results.. AT 300 YARDS PER MINUTE!

This cloth-printing machine, driven and controlled by Reliance Motor-drive, provides many advantages in addition to high operating speed.

Goods and backgrays are fed continuously. Tension of the fabric is automatically controlled. Pushbuttons at the printing end of the machine centralize control of all operations at the operator's finger tips —"run slow," "jog," "run fast," "stop," "rapid stop," etc. Along with increased quantity of output, quality and uniformity are improved.

Results like these are typical of those attainable through the application of Reliance Motor-drive to many textile operations. Phone or write the nearest Reliance office for more detailed information.

RELIANCE ELECTRIC & ENGINEERING CO.

1088 Ivanhoe Road • Cleveland 10, Ohio

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Detroit • Greenville (S. C.) • Houston • Kalamazoo • Los Angeles • Minneapolis New York • Philadelphia • Pittsburgh • Portland (Ore.) • St. Louis • San Francisco • Syracuse • Washington, D.C. • and other principal cities.

RELIANCE A-C D-C MOTORS

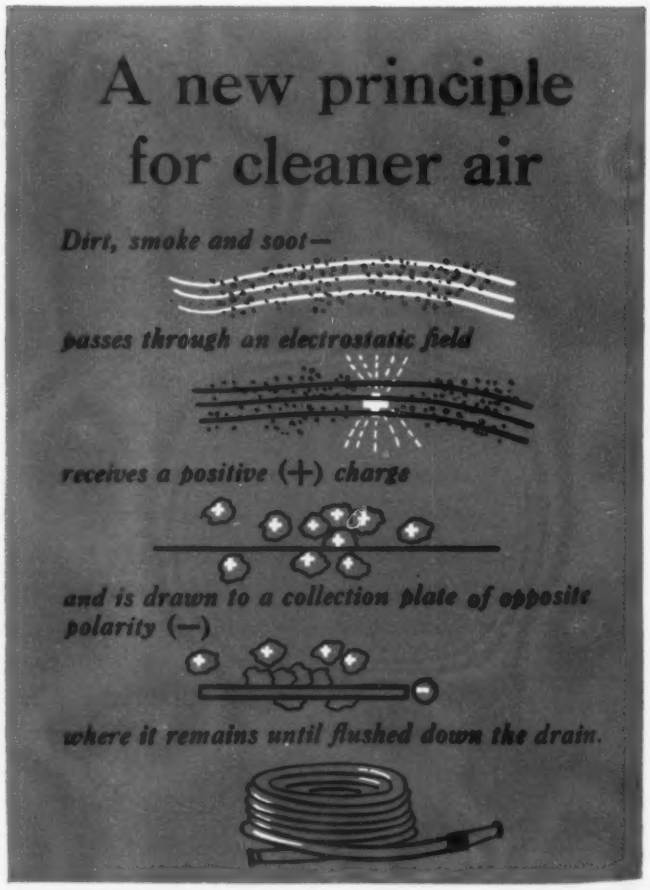
air. . .may be costing you plenty!

The air in your plant may be costing you plenty. Air-borne particles, 100 times smaller than the eye can see, cause shutdowns, ruin products, contaminate atmospheres and reduce the efficiency of your employees.

Conventional air cleaners can't remove these microscopic particles. But Westinghouse PRECIPITRON, cleaning air electrostatically, traps particles as small as 1/250,000 of an inch . . . even removes haze, welding fumes, tobacco smoke.

Really clean air is vital to production . . . to good working conditions and good health. Check the advantages of PRECIPITRON now . . . for war production or for early postwar uses in other fields. Westinghouse Electric & Mfg. Co., Dept. 7-N, East Pittsburgh, Pa.

J-04002


A new principle for cleaner air
Dirt, smoke and soot—
passes through an electrostatic field
receives a positive (+) charge
and is drawn to a collection plate of opposite polarity (—)
where it remains until flushed down the drain.

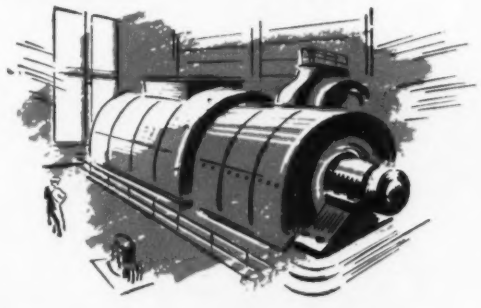
Westinghouse Precipitron

PLANTS IN 25 CITIES OFFICES EVERYWHERE

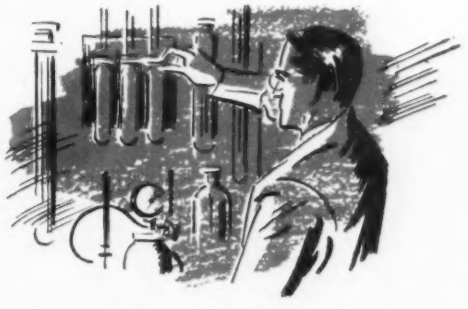
Precipitron *Applications*

MACHINERY & PRECISION INSTRUMENT PLANTS . . . Precipitron sweeps the air clean of tiny abrasives and corrosive particles that damage superfinished surfaces. In binocular assembly for example, Precipitron prevents dust from entering the enclosure between lenses which would later settle on lens surface.

TEXTILE MILLS . . . Installed in mills as part of the air humidifying and distributing system, Precipitron removes damaging particles before they soil yarn or thread. All smoke, dirt, soot and dust is banished during drying, spinning, and winding operations. Precipitron operation is simple . . . noiseless.

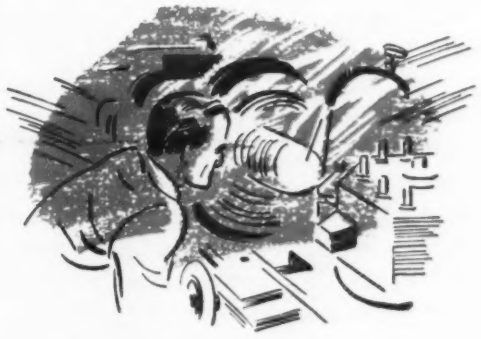


STEEL MILLS—POWER PLANTS—SUBSTATIONS . . . Precipitron effectively reduces maintenance shutdowns by eliminating the excessive dirt on machine windings which causes temperature rises and fires . . . prevents electrical breakdowns caused by leakage over the surface of dirty insulation . . . keeps machine ventilating systems dirt free.



CHEMICAL PLANTS . . . In plants where microscopic specks can cause imperfections in products and processes . . . or wherever miasma-free conditions are essential . . . Precipitron is a necessity. For example, Precipitron is being used in military photographic labs where a speck of dust might hide a Nazi factory in an aerial photo.

LABORATORIES . . . Regardless of outside air conditions, laboratories equipped with Precipitron enjoy perfectly cleaned air. The risk of errors in analysis . . . damage to sensitive equipment . . . threat to manufacturing or assembly operations due to dirt-laden air is positively eliminated.



MACHINE TOOL INSTALLATIONS . . . Oil mist caused by high-speed cutting, grinding and machining is dispelled by Precipitron. Condensation of oil on lighting fixtures and bus ducts is eliminated . . . oil coolant can be recovered for re-use. Exhaust air is cleaner than surrounding shop air and can be re-circulated.

the Electronic Air Cleaner

Keeping the Powder Dry... vital job for Mr. Cellophane

IN THE HIGH HUMIDITY and heavy rain of the Pacific jungles, the old axiom "Keep your powder dry" becomes acutely important. For example, water and moisture-vapor can ruin the effectiveness of propellant powders used in trench mortar ammunition. A special cellophane wrap developed in Sylvania's laboratories keeps the powder perfectly dry from the time it leaves the plant until it is fired.

Sylvania cellophane is doing many vital war jobs. But the unique developments Sylvania is making today will result in more uses for cellophane—and better cellophane—in the postwar tomorrow.

SYLVANIA CELLOPHANE

Made only by SYLVANIA INDUSTRIAL Corporation

Manufacturers of cellophane and other cellulose products since 1929

General Sales Office: 122 E. 42nd St., New York 17, N. Y. ★ *Works and Principal Office:* Fredericksburg, Va.

SYLVANIA CELLOPHANE ARMY-NAVY E

Reg. Trade Mark

DYESTUFFS • CHEMICALS • INTERMEDIATES

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Greenwich & Morton Sts.
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L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

FACTORS

For Manufacturers and Merchants

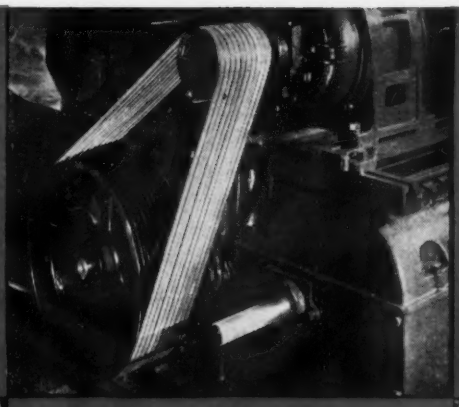
Inquiries as to our services solicited

●

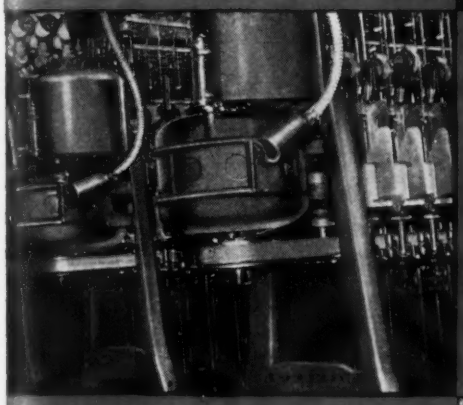
ESTABLISHED 1840

A Gilmer BELT

FOR EVERY TEXTILE DRIVE

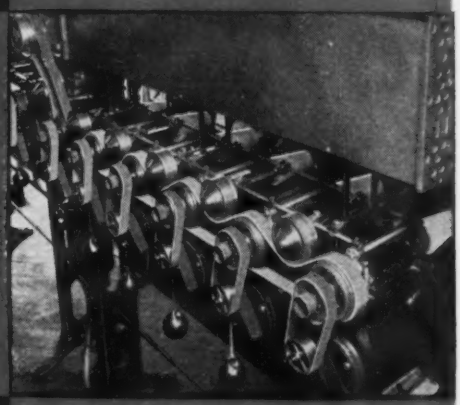


GILMER V-BELTS: Space-saving, silent, shock-absorbing belts, built to lock in the grooves with a non-slip grip. Made in standard and special sizes. Deliver power from the motor to the spinning frames with maximum efficiency.

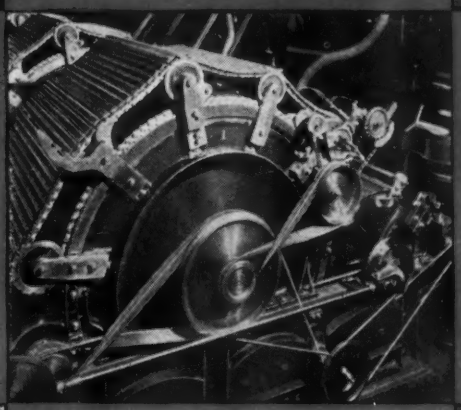


GILMER HEVALOID GAINER BELTS: Made under the Hevaloid patent with Neoprene compound that provides high coefficient of friction. For precision work at top speed of 9000 f.p.m. Resists oil, heat, stretch and slippage.

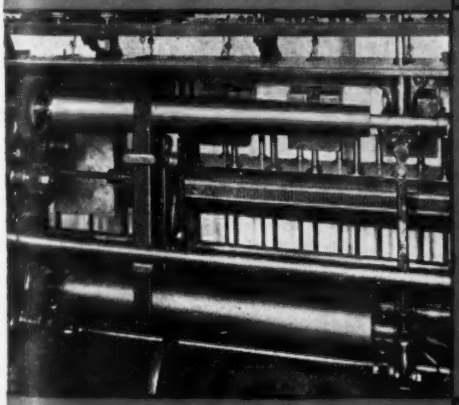
GILMER ENDLESS CORD SPINNER BELTS: Built with continuous cord construction to guarantee smooth and uniform spindle speed.



GILMER KABLE KORD LICKERIN BELTS: Rubber fabric and tough continuous cord construction give you a contactor and power belt in one, and will outlast any other belt on the market. Exceptional grip and strength combine in these flat belts with low-stretch, small slippage and extra tensile strength.

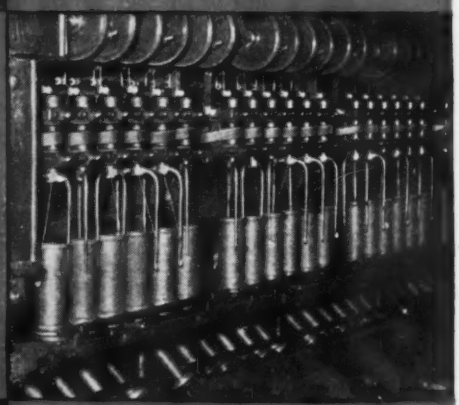


The Gilmer Engineering Staff specializes in power transmission problems. They are available for consultation without obligation. They can show you how to increase the efficiency of most of the drives in your plant by using dependable, tight-gripping, slip-free Gilmers.



GILMER CD SPINDLE BELTS: Vulcanized on the drive; true spindle speeds are assured. More consistent power, more freedom from attention, longer wear.

GILMER CONE DRIVE BELTS: Reinforced multiple-jacketed edges and rubber-locked internal structure check wear and unraveling of the belt from the action of shifter forks. Longer life in the toughest service.



USE WHAT YOU LOSE

Gilmer BELTS

L. H. GILMER COMPANY

Tacony, Philadelphia 35, Pa.

The Oldest Firm of Rubber Fabric Belt Specialists

These belts and many others are completely described in the handbook "Gilmer Belts for the Textile Industry." This book simplifies the details for specifying belts for the great majority of drives. Write for your Free copy today.

HATS . . . off to the Tropics!

Old Sol isn't going to be the "undoing" of any American fighting men in the tropics, if first-class tropical equipment can prevent it. Sun helmets are important in tropical areas and must reach destinations undamaged. In their delivery, H & D corrugated shipping boxes are completing another wartime packaging mission—without a hitch.

Every H & D war packaging project is minutely studied by H & D Package Engineers to determine if it holds any features that may assist in bettering the packages you will use when world commerce is again on a peace-time basis. Already the "early birds" of progressive business are *getting a line* on future packaging requirements; planning and designing *now* so they won't have to *stand in line* later.

The files of H & D are crowded with packaging ideas obtained from hundreds of war-time jobs. So, for packages that will protect and promote your products, remember, H & D Package Engineers are ready to help you plan *now*.

BUY WAR BONDS *TODAY* — TOMORROW NEVER COMES

Tells How to Pack War Materials in Corrugated Boxes

The increasingly important shipping job is to get as much essential material to destination points the fastest, safest and most economical way possible. H & D's Little Packaging Library Booklet, "How to Pack War Materials in Corrugated Shipping Boxes" is filled with valuable information on packaging all types of war materials. For your copy write The Hinde & Dauch Paper Company, Executive Offices, 4430 Decatur Street, Sandusky, Ohio.

• • •

FACTORIES in Baltimore • Boston • Buffalo Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal Richmond • St. Louis • Sandusky, Ohio • Toronto

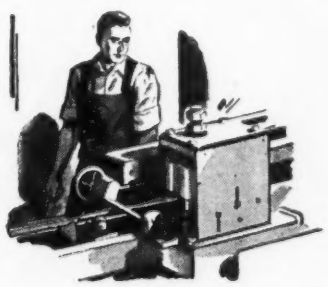
For postwar packaging . . better see **H&D HINDE & DAUCH**

AUTHORITY ON PACKAGING . . . CORRUGATED SHIPPING BOXES

Thinking about reconversion?...

Reconversion may mean headaches to many engineers and production men. To you who are thinking about these problems now, consider industry's new production tools—the applications of electronic tubes and what they are doing today.

FOR EXAMPLE...



a midwestern manufacturer of heavy equipment saves $15. a ton in hardening steel bars by electronic control . . . a saving of 50% over conventional methods.

FOR EXAMPLE...

in another plant, shells are accepted or rejected electronically, eight different tests for accuracy completed in split seconds, at a rate of one shell a second.

FOR EXAMPLE...

a maker of hand grenade fuses prevents disastrous and costly explosions by checking the exactness of the powder charge with electronic tubes.

The profitable application of electronic tubes is legion. A look around your plant may disclose ways to save you worry, get increased production and create more profits. It may be in electronic induction or dielectric heating, in welding control, in motor speed control, in inspection, in counting, sorting, weighing. Can you save money or not by putting electronics to work? If you have a hunch about an operation of this kind and need help, let us know. Write Westinghouse Electric & Manufacturing Co., Lamp Division, Bloomfield, New Jersey.

Westinghouse

PLANTS IN 25 CITIES OFFICES EVERYWHERE

Quality Controlled Electronic Tubes

For industrial tube replacements, remember you can get quick local service from your nearest Westinghouse distributor.

WESTINGHOUSE PRESENTS John Charles Thomas • Sunday 2:30 EWT., N.B.C. ★ Ted Malone • Monday, Wednesday, Friday—10:15 EWT—Blue Network.

BETTER LUBRICATION *means* BETTER MAINTENANCE

IF you are experiencing difficult maintenance, better check lubrication. It may be inadequate with resultant excessive wear.

Sinclair offers better lubrication for better maintenance. LILY WHITE OILS have lasting film strength . . . keep drag and temperature low . . . promote longer life for spindle bolsters. NO-DRIP LUBRICANTS are non-creeping and splash resistant. BEARING GREASE AF has the added desirability of color neutrality and water solubility.

• • •

(Write for "The Service Factor"—published periodically and devoted to the solution of lubricating problems.)

SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

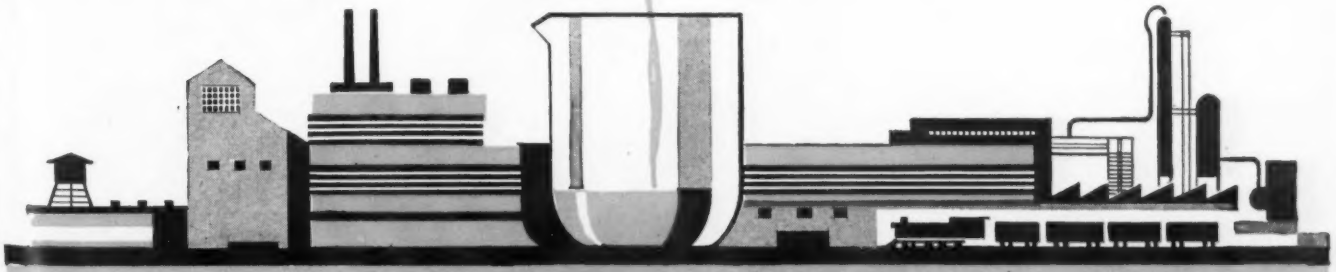
THE CRITICAL COMPONENT

TEXTILE CHEMICALS

Each component of a process using chemicals is manifestly a critical one. This is axiomatic. Yet, in every process, there is one component that is more critical than any other in its effect on the finished product. This might be a material, or it might be the skill and experience of the manufacturer producing it . . . or both. You look to your source of supply because that component does affect the efficiency of your processes.

Oils for processing textiles have been developed by Emery with that thought in mind. They include the well-known, time-tested Twitchell Wool and Worsted Oils, 3X and 304 for sanforized finishes, and oils 681 and 685 used in the production of rayon yarns. These oils resist oxidation, store well on stocks, and lose none of their properties on long standing. All of these oils can be scoured off easily with a minimum quantity of mild alkali . . . soda ash, for example.

Emery's red oils, both distilled and saponified (undistilled), and other textile oils are available over a wide range of specifications. Let us know your requirements because we would like to recommend the grade most suitable for the best results, and the greatest economy. We will gladly send you samples on request and can make prompt delivery of your requirements.



EMERY INDUSTRIES, INC.

4300 Carew Tower • Cincinnati 2, Ohio

Branch Offices: New York, N. Y. . . . . Philadelphia, Pa. . . . . Lowell, Mass.

PLASTICIZERS . . . STEARIC, OLEIC, ANIMAL, VEGETABLE AND FISH OIL FATTY ACIDS . . . TWITCHELL PRODUCTS

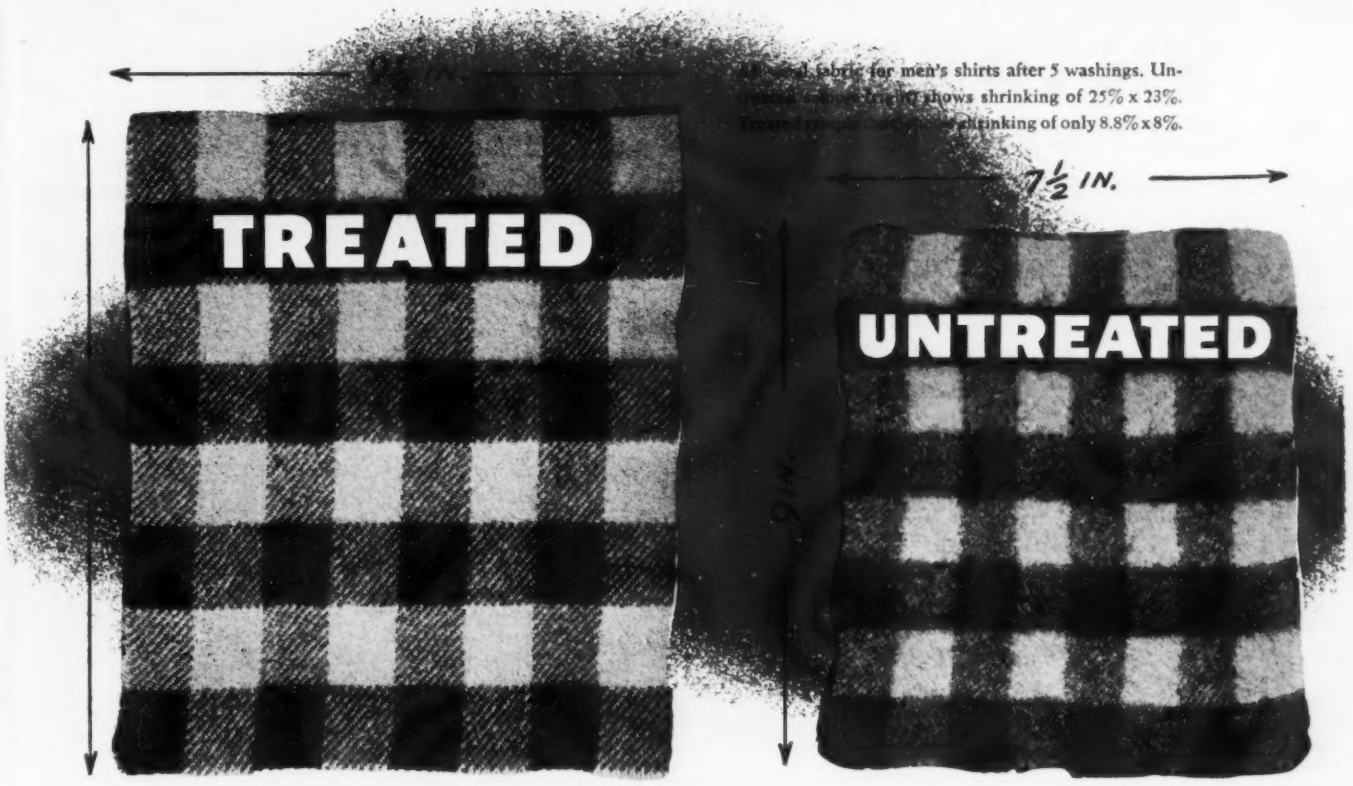
From a corrosion standpoint, where are you having trouble?

Are you having continual trouble because some piece of equipment can't stand up against corrosive attack? Do you have skylights, windows, doors and other structural members which suffer similarly? Aluminum isn't a cure-all. But it has overcome difficulties in many locations, or slowed them down to a point where aluminum's use is more than justified.

Often, these assignments are tough ones, requiring special consideration of alloys. You may find that even the aluminum must be safeguarded by protective coatings, cathodic protection or inhibitors. Our engineers have devoted years to studying ways of assuring maximum service with Alcoa Aluminum Alloys. They are well-fitted to advise you on such problems.

Jot down those spots where you'd like to consider aluminum. Then ask your nearest Alcoa office for help, or write ALUMINUM COMPANY OF AMERICA, 1942 Gulf Bldg., Pittsburgh 19, Pa.

ALCOA ALUMINUM



HERE IS *Shrinkage Control* FOR WOOL AND WOOL BLENDS

LANASET*— a new development in melamine resin research — brings a long hoped-for solution to one of the textile industry's oldest problems — shrinkage control for wool and wool-blend fabrics.

Comparative tests, such as that illustrated above, prove that — even after repeated washings—LANASET-processed fabrics retain their dimensional stability to a degree not hitherto believed possible. Felting is reduced, too — pilling and fuzzing minimized — and a much higher resistance to alkali is obtained.

Sufficient LANASET for plant trials is available for prompt shipment and Calco's Technical Service is at your disposal.

*LANASET *is the trade-mark of American Cyanamid Company applied to melamine resins of its manufacture for use in wool shrinkage control.*

Calco

CALCO CHEMICAL DIVISION • AMERICAN CYANAMID COMPANY

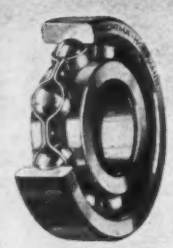
BOUND BROOK, NEW JERSEY

NEW YORK BOSTON PHILADELPHIA PROVIDENCE CHARLOTTE CHICAGO

VICTORY, first: THEN—

PRECISION BEARINGS FOR EVERY PURPOSE, INDUSTRIAL AND DOMESTIC

Separable (Magneto) Ball Bearing



Single Row Ball Bearing

War's demands still call for all the output of the NORMA-HOFFMANN factory. But, already, far-sighted manufacturers are working with NORMA-HOFFMANN engineers on their designs for new and better peace-time products equipped with PRECISION BEARINGS.

No "Re-conversion Problem" will hamper or delay NORMA-HOFFMANN post-war production. The moment peace is declared, all our vast facilities will be turned INSTANTLY to the production and prompt delivery of PRECISION BEARINGS for new and better domestic appliances and for new and better tools for industry.

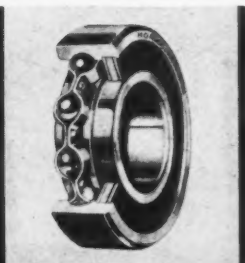
Our Field Engineers, in all our District Offices, are ready to work with YOUR designers. Avail yourself of their experienced counsel NOW—without obligation, and of course in strict confidence. *Write for the Catalog—Today.*

TO WIN THE WAR: WORK—FIGHT—BUY WAR SAVINGS BONDS!

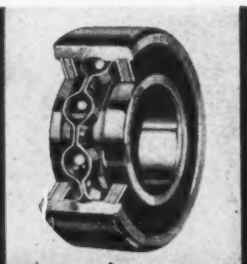
Litro ("CL") Composition Retainer Ball Bearing

Double Row Self-Aligning Ball Bearing

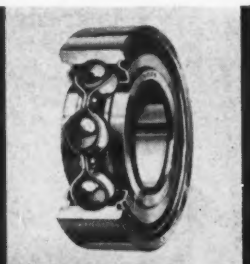
Shielded Type Single Row Ball Bearing



Single Felt Seal Ball Bearing



Double Felt Seal Ball Bearing



9000 Series (Feltless) Sealed Ball Bearing

"Cartridge" Fully Sealed, Refillable Type Ball Bearing

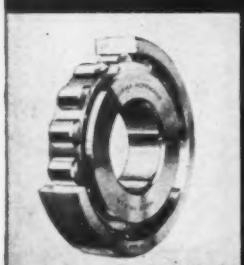
Double Row Ball Bearing

Extra Light Type Ball Bearing

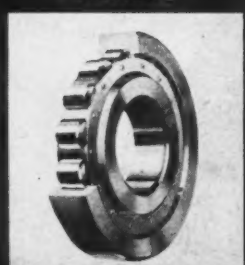
Angular Contact Ball Bearing

Extra Light Single Direction Ball Thrust Bearing

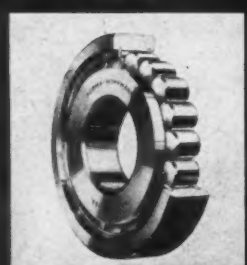
Single Direction Ball Thrust Bearing



Standard Cylindrical Roller Bearing

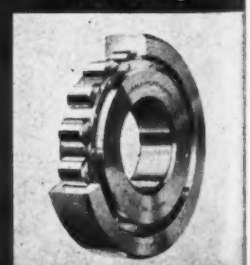


Type "E" Cylindrical Roller Bearing



Full Type (Retainerless) Cylindrical Roller Bearing

Extra Light Cylindrical Roller Bearing

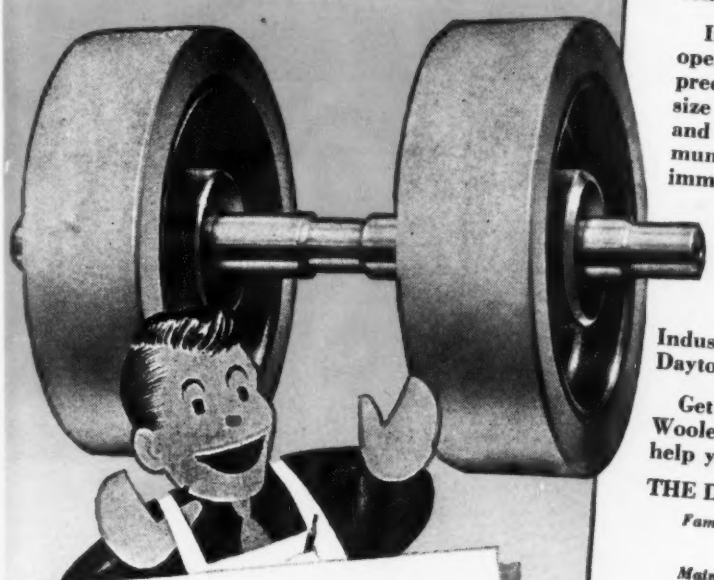


Two-Lipped Cylindrical Roller Bearing

NORMA-HOFFMANN BEARINGS CORP'N. STAMFORD, CONN. *Founded* 1911

Field Offices: NEW YORK • CHICAGO • CLEVELAND • CINCINNATI • PITTSBURGH • DETROIT • LOS ANGELES • SAN FRANCISCO • SEATTLE, WASH.

All Original Installations of Dayco Woolen and Worsted Cots are Still in Service



Even now, after many years, Dayco Woolen and Worsted Cots *still* have shown no sign of grooving, or deterioration. They've cut replacement to a new absolute minimum. To date, they've already proved to outlast all other cots by at least 12 times over—*and still those same Daycos* continue to serve.

You apply them to arbors in as little as ⅓ the usual time. They're unaffected by hard ends, unmarred by foreign material, and *remain* immune to temperature and humidity changes or extremes. With Daycos there's no need to reduce weights or pressures during shutdowns. Monday Morning Start-ups are immediate, without resetting cots, and always without slippage.

They're oil-proof. Static-free. And with less matching-up, due to more uniform yarn, Daycos eliminate idle frames . . . *production is increased!*

And Daycos save power consumption . . . at least 25%, usually 50%, sometimes as much as 75%. For Daycos require less than a quarter of the customary tension.

In addition, Daycos give three other unusual operating advantages: They require no special precaution for running dyed yarns. They run any size or type of yarn (including blends) cleaner; and with equal efficiency and new absolute minimums of lint. And they simplify schedules, giving immediately more and better production of specially wanted numbers. Daycos are standard today in hundreds of mills.

These Dayco Woolen and Worsted Cots are typical of the Technical Excellence of all Dayton Rubber products for the Textile Industry, and worthy of the many years which Dayton has spent to make them so.

Get for yourself *all* the advantages of Dayco Woolen and Worsted Cots. Write today. They will help you, too.

THE DAYTON RUBBER MANUFACTURING CO.

Famous Dayco Synthetic Rubber Products Since 1934

Dayton 1, Ohio — Waynesville, N. C.

Main Sales Office: Woodside Bldg., Greenville, S. C.

REMEMBER PEARL HARBOR
BUY AT LEAST
AN EXTRA $100 WAR BOND

CHECK ALL 8 ADVANTAGES

1 Dayco Woolen and Worsted Cots save up to ⅔ time in applying to arbors.

2 They outlast others at least 12 times over.

3 Power consumption is greatly reduced on spinning and drawing frames.

4 Much less matching-up is required, since they produce the highest yarn-uniformity.

5 Roll replacement is minimized.

6 Time and labor are saved in readjusting pressures following shutdowns.

7 Any combination of wool, rayon, and mohair runs with equal efficiency and minimums of lint.

8 Your production schedules are simplified. Daycos assure more and better production of numbers needed most. Send for your complete information today.

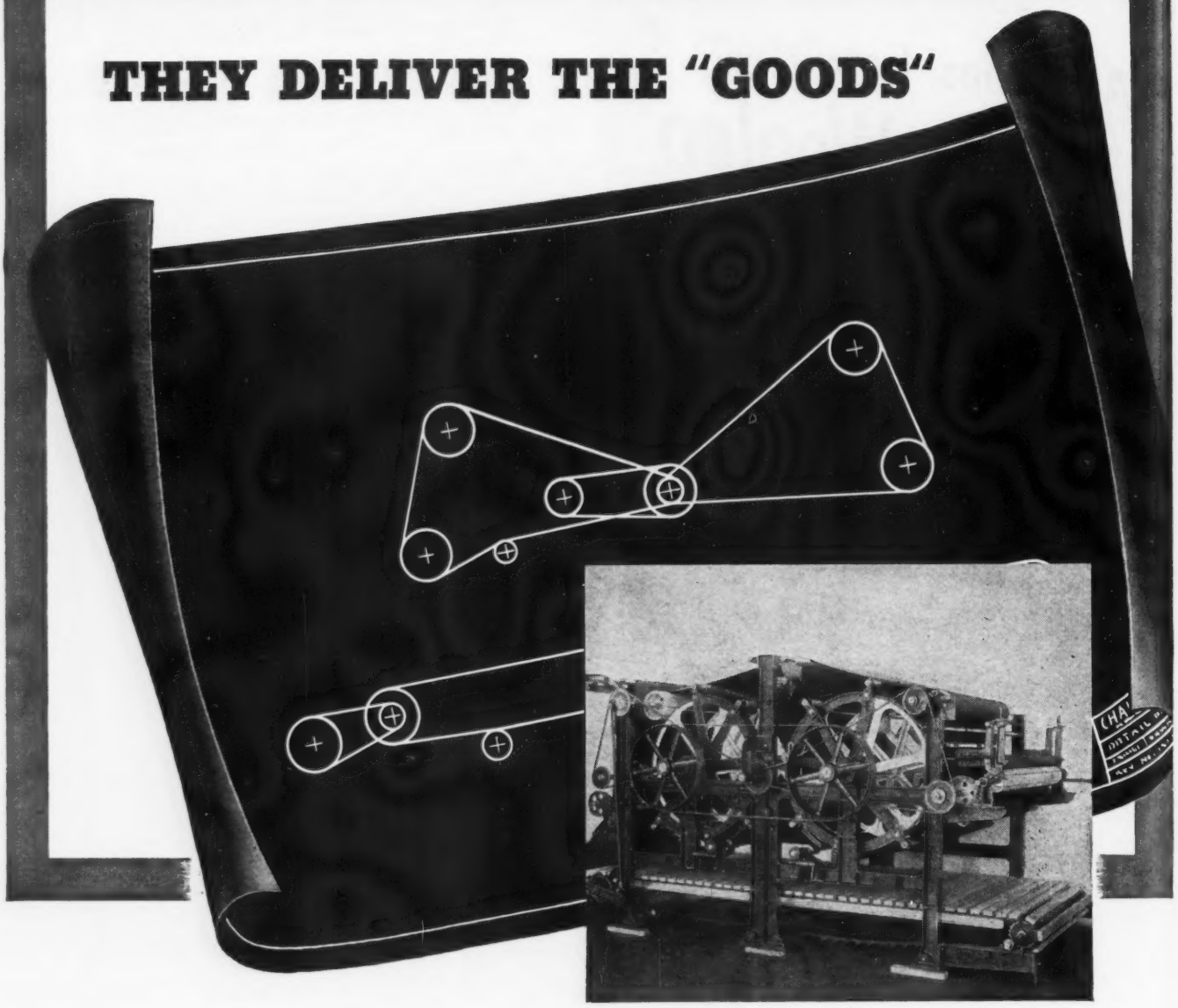
Roll Coverings by

Dayton Rubber

REG. TRADE MARK — THE DAYTON RUBBER MFG. CO.

The Mark of Technical Excellence in Synthetic Rubber

THEY DELIVER THE "GOODS"



Smooth, flowing power . . . accurate split-second timing . . . characterize the operation of this double cylinder slat gig. For performing the driving, timing functions and delivering the goods smoothly, positively, are Baldwin roller chain belts.

THE many intricate functions of this slat gig must be perfectly co-ordinated to assure perfect teaseling. Jerky, uneven power transmission would result in an uneven nap.

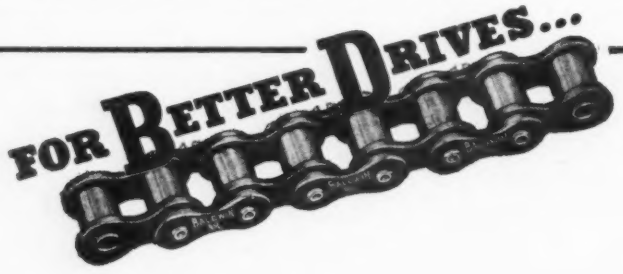
That is why on this machine, as on so many other types of textile machinery, Baldwin roller chain belts are used for all driving, timing and conveying. Their smooth, even flow of power, their ability to absorb damaging shocks assure steady, jerk-free machine operation.

Baldwin drives are easily installed on long or short centers. They are noted for their cleanliness and cost-reducing ability.

BALDWIN ROLLER CHAIN BELTS OFFER YOU THESE ADVANTAGES

1. Infrequent, low-cost, easy maintenance.
2. Sturdy and reliable—will not fail suddenly.
3. Long life due to B-D sprocket tooth form, all-metal chain construction, and lubrication.
4. No hazard from static electricity or overheating.
5. Quiet in operation—do not create vibration.

For complete information on Baldwin Roller Chain Belts, call your Baldwin Man or write for your copy of Catalog M. Baldwin-Duckworth Division of Chain Belt Company, 346 Plainfield Street, Springfield 2, Mass.



BALDWIN

ROLLER CHAIN BELTS

Use DECERESOL* OT

THE SPEEDIEST WETTING AGENT AVAILABLE FOR TEXTILE PROCESSING

DECERESOL OT comes to you in liquid form ready for addition to the wet processing bath without preliminary make-up or manipulation. This speed of application, plus the unmatched wetting, penetrating, dispersing and dye leveling properties of DECERESOL OT, mean time and labor saved, lower costs and improved production.

There are at least thirty different ways in which DECERESOL OT offers such advantages in textile processing. It is as versatile as it is efficient.

Your request for more complete information on DECERESOL Wetting Agents will receive our prompt attention. And our representative will gladly assist you in using them to obtain the best results.

DECERESOL OT is shipped in standard 55-gallon stainless steel drums having an exact weight of 450 pounds, or in 12-gallon boxed carboys with an exact net weight of 100 pounds.

AMERICAN CYANAMID & CHEMICAL CORPORATION

(A Unit of American Cyanamid Company)

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

MANUFACTURERS OF

SULPHONATED OILS • PENETRANTS • SOFTENERS

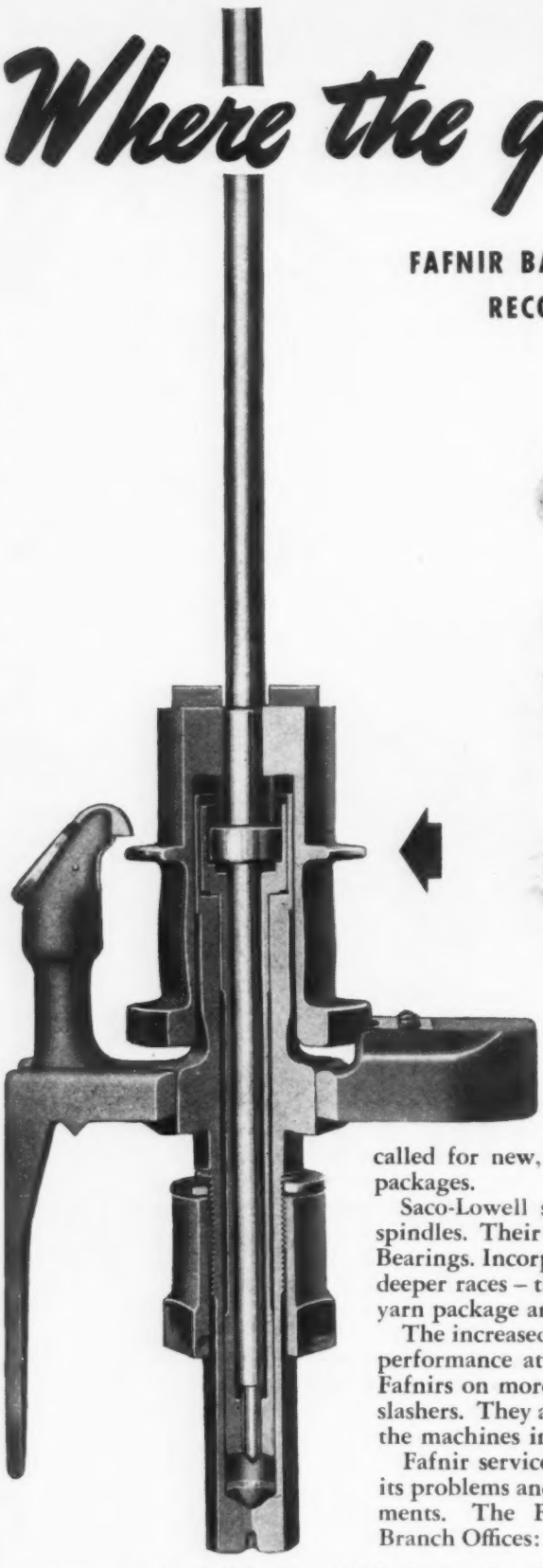
FINISHES • SIZING COMPOUNDS • DECERESOL* OT

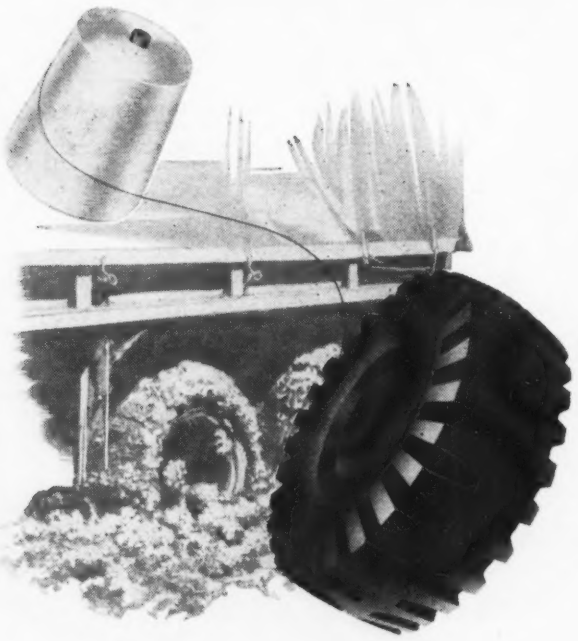
WETTING AGENTS AND OTHER SPECIALTIES FOR THE TEXTILE INDUSTRY.

*Reg. U. S. Pat. Off.

Where the going is Heavy–

FAFNIR BALANCED DESIGN PAYS OFF IN PERFORMANCE RECORDS OF HI-TENACITY RAYON TWISTERS





Army tests proved the extra performance margin of Hi-Tenacity Rayon Cord for tires to carry men and supplies over "impassable" roads. Millions of yards were needed – quickly.

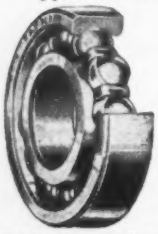
Old-style twisters were out. Hi-Tenacity Rayon Cord called for new, high speed twisters capable of handling the oversize yarn packages.

Saco-Lowell specifications for these new twisters called for ball bearing spindles. Their tests proved this to be a job for Fafnir 302K Single Row Radial Bearings. Incorporating the famous Fafnir Balanced Design – larger balls and deeper races – these bearings could carry the extra *thrust* load of an oversize yarn package and the heavy *radial* load caused by the pull of the tape.

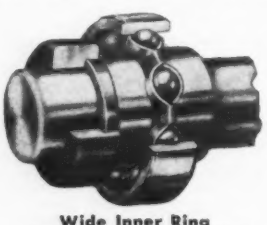
The increased speed of practically all textile machines calls for ball bearing performance at critical "turning points". You will find extra-performance Fafnirs on more and more of these high speed twisters, looms, winders and slashers. They are delivering the kind of uninterrupted service you want from the machines in your mill.

Fafnir service-engineers have lived with the textile industry. They know its problems and will be glad to work with you to meet your bearing requirements. The Fafnir Bearing Company, New Britain, Connecticut. . . . Branch Offices: Atlanta . . . Birmingham . . . Boston . . . Charlotte . . . Dallas.

Types of Fafnir Ball Bearings Widely Used on Textile Machinery



Single Row Radial



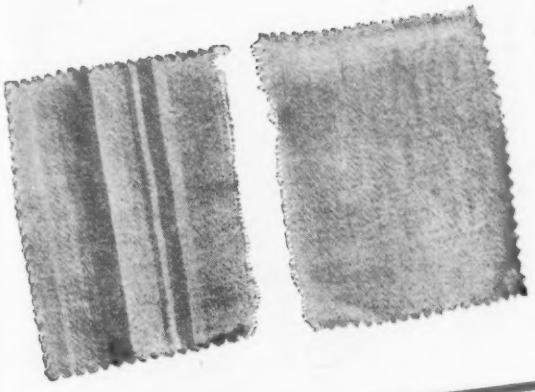
Wide Inner Ring with Self-Locking Collar

Mechani-Seal

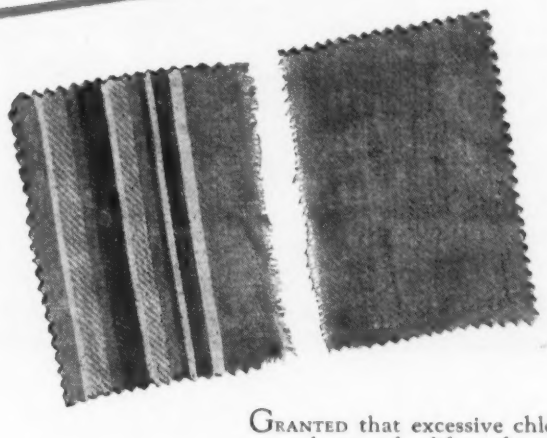
FAFNIR
BALL BEARINGS

BUY WAR BONDS AND STAMPS

after a chlorine bleach . . .



untreated sample lost 10 to 20% in strength!



Resloomed sample showed little loss in strength!

GRANTED that excessive chlorine bleaches may shorten the life and weaken the fibre of *any* fabric

. . . the ability of a fabric to withstand repeated washings under all types of conditions is important

. . . and the story told by the samples above is welcome news!

Both of these rayon samples were given repeated washings followed by the chlorine bleach. One, which was untreated, lost 10 to 20% in strength. The other, which had been treated with a Resloom (melamine resin) finish *showed less than 3% loss in strength!*

In other words, Resloomed rayons show better washability—better serviceability—reduce the laundryman's problems.

In addition to reducing shrinkage, and improving crease resistance, washability, durability and strength, Monsanto's new Resloom finishes actually tend to *improve* a fabric's resistance to chlorine.

Resloomed rayons help to alleviate the problems of the laundry owners as well as the housewife's home laundering difficulties and help to make rayons washable.

* * *

Greater resistance to chlorine bleach is just one of many new and important improvements realized in the new Resloom finishes which are now undergoing extensive mill trials . . . and the Resloom finishes are just one of many new and important developments which have come from Monsanto's textile research laboratories in recent months. If you would like to know more about these developments . . . or if you would like to pose a problem of your own . . . write: MONSANTO CHEMICAL COMPANY, Merrimac Division, Everett Station, Boston 49, Mass.

Divisions cooperating in Monsanto textile research in addition to Merrimac Division include: Central Research Laboratories at Dayton, Ohio; Organic Chemicals Division and Phosphate Division at St. Louis, Missouri; Plastics Division at Springfield, Massachusetts.

MONSANTO
CHEMICALS AND PLASTICS

The Textile
SERVING ∧ INDUSTRY . . . WHICH SERVES MANKIND

Who Has the Quick "WORD'S-EYE" View?

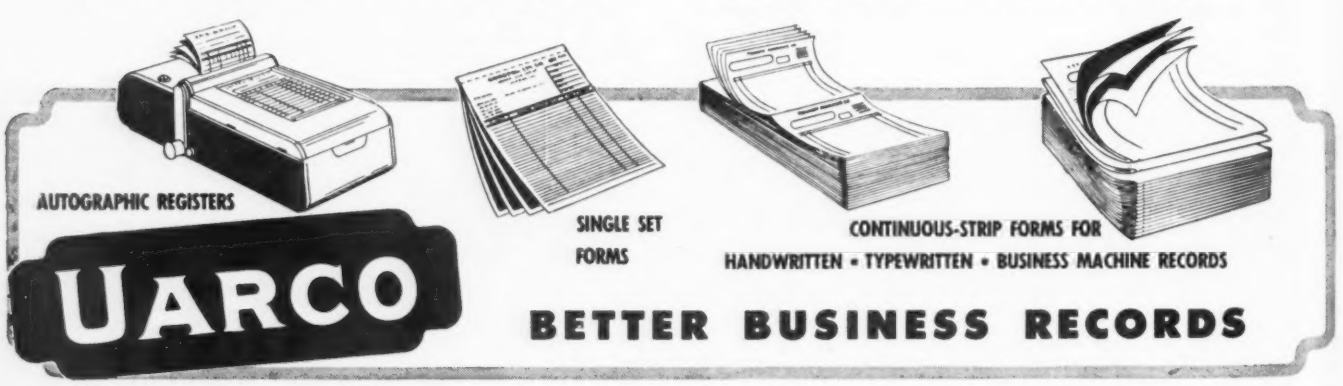
That's easy to see. For even the magnifying glass is apt to fail when carbons are faded and blurred. It is just such records that sacrifice speed and accuracy.

And unreadable records have no place in business today. Not when Uarco **continuous-strip** forms give you a quick "word's-eye" view of the what, where and when of every business transaction at a glance . . . record forms with fresh carbons that assure legibility on every copy. Thus *one* person at *one* writing can lessen the possibility of errors all along the record route, from buying to billing.

Uarco **continuous-strip** forms are scientifically designed to meet individual record-keeping problems . . . to eliminate repetitive actions and time-wasting getting-ready-to-write operations. Uarco records are made for either handwritten or machine-written use. They may be carbon interleaved or non-interleaved; may be used in a Uarco Autographic Register, typewriter, billing or tabulating machine.

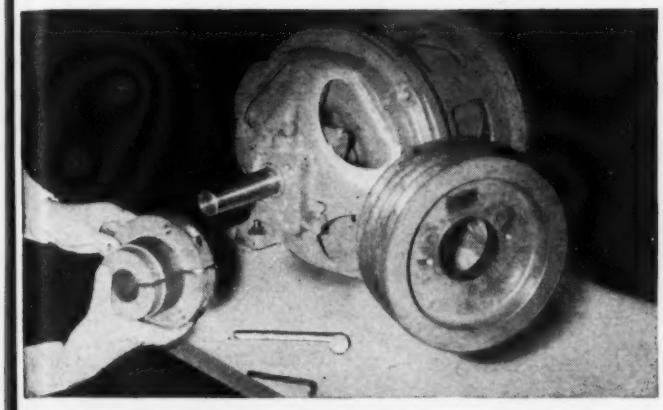
For over 50 years, Uarco has been designing better business records. If you have a record-keeping problem, why not call in Uarco? It will cost you nothing to have a Uarco representative call on you today.

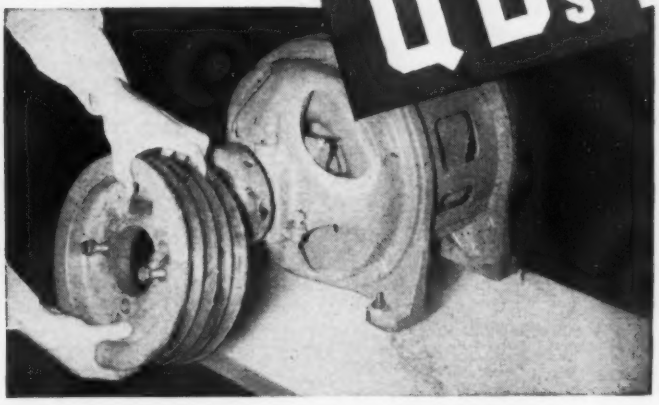
UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*



DO YOU HAVE THESE 3 FEATURES IN YOUR PRESENT SHEAVES?

If so, they must be WORTHINGTON'S QDs





1. EASY TO GET ON

2. EASY TO GET OFF

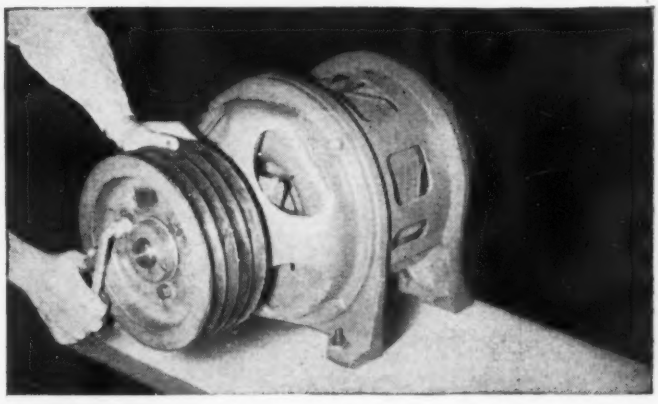
Are you losing time with old-fashioned sheaves? You may be, if you haven't got the QD's time-saving *three* features.

1. Split hub — with taper cone surface for mounting taper bored rim — makes *installation easy*.

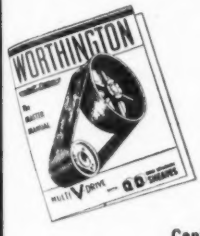
2. Pull-up screws usable as jack bolts break Taper Friction Fit, quickly free shaft for bearing maintenance, speed changes, or *quick removal* and mounting of different diameter rims . . . without disturbing the hub. No alignment problems.

3. Bigger pull-up bolts for higher taper cone pressure insure positive clamp grip, keep sheave *always tight on the shaft*.

The sheave with these 3 features, teamed up with Worthington Goodyear Endless Cord V-Belts will give you more for your money. Stock size sheaves and belts at strategic centers from coast to coast.



3. YET ALWAYS TIGHT ON THE SHAFT



Reading Time: 3 Minutes—To Get Accurate Belt Ratings

From the 72-page Master Manual, containing original engineering data . . . sectionalized, loose-leaf, tabbed for ready reference . . . you can select in three minutes the right Worthington V-Belt drive. You get accurate belt ratings . . . avoiding *over*-belting and *under*-belting. Send the coupon today for your free copy! Specification and installation record sheets included.

Centrifugal, Rotary, Steam & Power Pumps | Vertical & Horizontal Compressors | Liquid Meters | Variable Speed Drives | Multi-V-Drives

WORTHINGTON *BEHIND THE NAME* WORTHINGTON

Standard Products Division
Worthington Pump and Machinery Corporation
Harrison, N. J.

MV4-11

Standard Products Division
Worthington Pump and Machinery Corporation
Harrison, N. J.

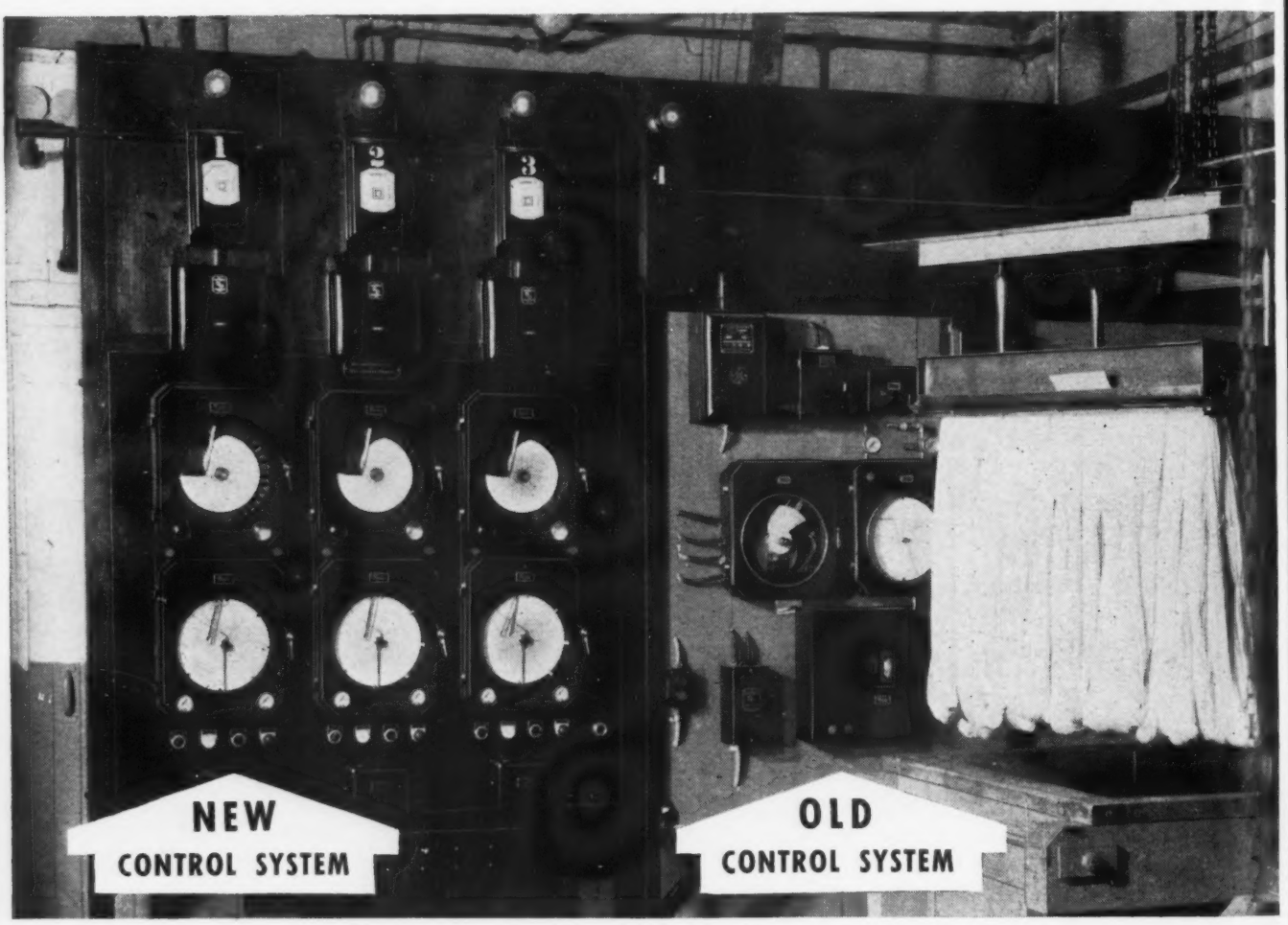
Please send me a copy of the Worthington Master Manual.

Name .....

Company .....

Address .....

Look how much we've improved automatic dye-vat control!



THE arrows tell the story. Each one of the three new Taylor Time-Schedule controls on the left (nos. 1 to 3 above) does the same job as the far more complicated setup on the right (no. 4), and does it *better.* The sequence and duration of all the temperature and auxiliary functions are controlled from within the new instrument—more simply, less expensively, and more easily adapted to changes in future processing requirements.

Now all the operator has to do is load the vat and push a button, and the whole dyeing process is carried on automatically. Temperature is held to a degree of accuracy not previously believed possible. Timing is precise.

One cam handles *all* schedules. All timings are set on graduated dials—rise period, hold period, rotation of agitator, add periods. Agitator motor always starts in reverse direction—hanks of yarn are straightened out immediately.

This control system, while applied to a yarn dyeing job in this instance, is equally effective on raw stock, top, package or piece dyeing applications. Ask your Taylor Field Engineer for details, or write to Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow and liquid level.*

BUY ANOTHER WAR BOND TODAY!

ARMY NAVY

Taylor Instruments

MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY

"WE LOOK FOR *Uniformity of Stitch* IN KNITTING,"

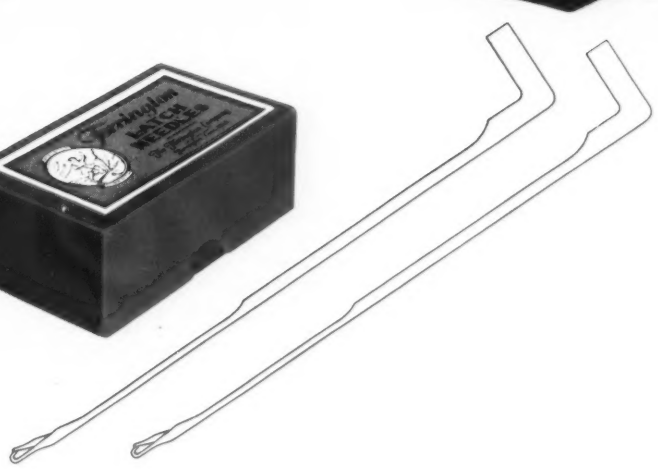
SAYS MR. S. J. TEICH
CHILDREN'S HOSIERY BUYER
R. H. MACY & CO., INC.
NEW YORK.

"We believe the fit of a child's hose is as important as the fit of his shoes, since perfect fitting hose can add greatly to the comfort of shoes and contribute much to the full, natural development of a child's foot. Uniformity of stitch is all-important in children's hosiery. It is one of the most necessary factors in obtaining good fit in socks and stockings."

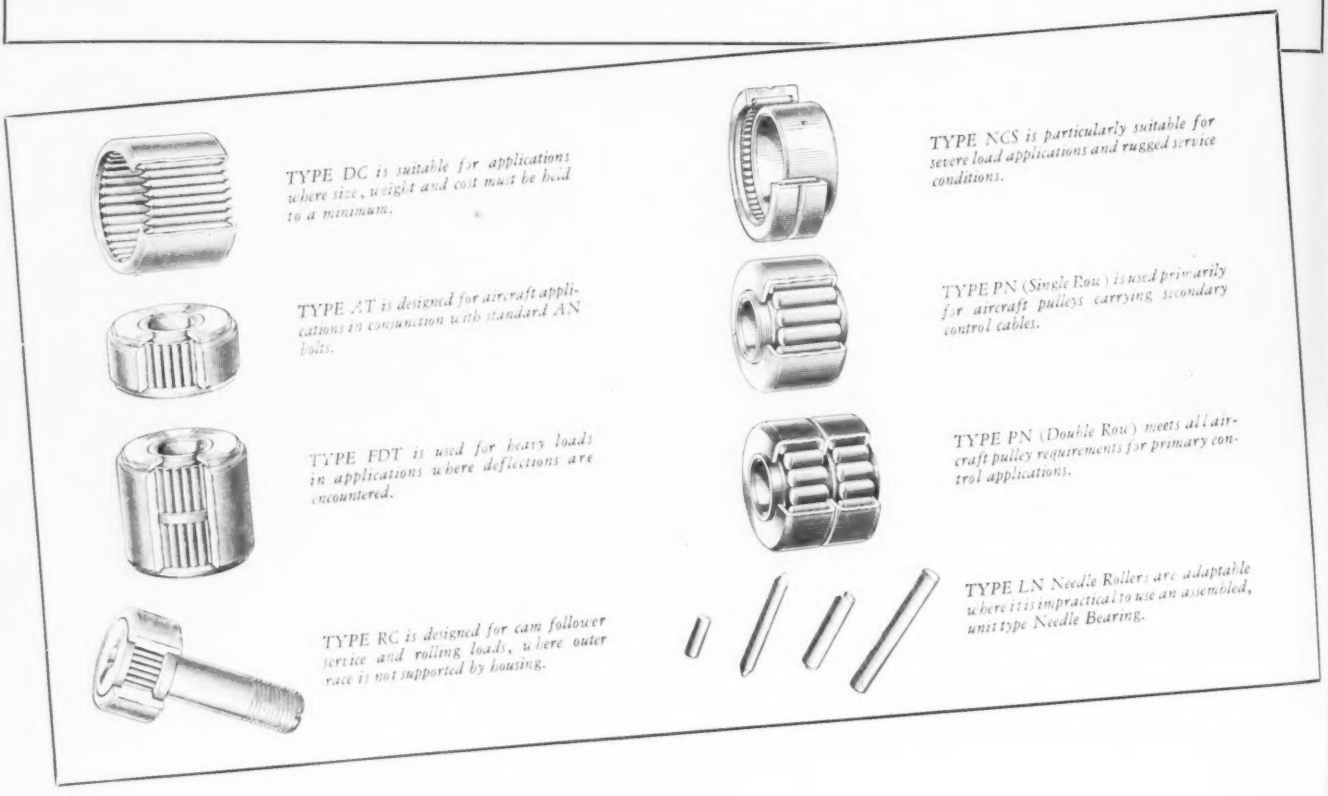
★ ★ ★

Uniformity of stitch is one feature that good needles can help to assure. That is one of the reasons why so many leading knitting mills insist on the use of Torrington Needles for every type of work they do. Mill men everywhere know that Torringtons are the machine-made needles, the quality of which is controlled by advanced machine manufacturing methods. Rely on Torringtons, always, to achieve greater control over the quality of *your* knitting.

TORRINGTON
Latch Needles



One of these Needle Bearings May Solve a Design Problem for You...


TYPE DC is suitable for applications where size, weight and cost must be held to a minimum.
TYPE AT is designed for aircraft applications in conjunction with standard AN bolts.
TYPE FDT is used for heavy loads in applications where deflections are encountered.
TYPE RC is designed for cam follower service and rolling loads, where outer race is not supported by housing.
TYPE NCS is particularly suitable for severe load applications and rugged service conditions.
TYPE PN (Single Row) is used primarily for aircraft pulleys carrying secondary control cables.
TYPE PN (Double Row) meets all aircraft pulley requirements for primary control applications.
TYPE LN Needle Rollers are adaptable where it is impractical to use an assembled, unit type Needle Bearing.

It may not have occured to you that there are so many *different* types of Needle Bearings—or that the completeness of the line of these modern, antifriction bearings makes them adaptable to many design requirements.

Pictured above are eight different types—all different in design yet employing the same basic design principle of a full complement of small diameter needle rollers. Each is engineered for a particular task—or combination of design requirements. Individually each offers the same characteristic advantages of compact design, small size, light weight, high capacity, efficient lubrication and low cost.

The result is that in almost any application where Torrington Needle Bearings are employed, the design problem is simplified; operating efficiency and service life are increased; manufacturing costs are reduced, and sales features are added.

Investigate for yourself how these advantages can be of assistance in your product planning. The Torrington Needle Bearing Catalog 30-A gives complete information, and our engineering staff is ready to help you with any specific design requirement.

THE TORRINGTON COMPANY

Established 1866 • Torrington, Conn. • South Bend 21, Ind.

"Makers of Needle Bearings and Needle Bearing Rollers"

New York Boston Philadelphia
Detroit Cleveland Seattle
San Francisco Chicago Los Angeles
Toronto London, England

"LET'S GO! U.S.A. KEEP 'EM FLYING!"

TORRINGTON
NEEDLE BEARINGS

ENDLESSLY

the Improvement goes on...

● Since 1913, in the Formica Laboratories, a considerable force of competent research men has been busy every day seeking new ways to improve Formica and its usefulness to industry.

They have worked out a long line of improvements which have been additions to the art. During these war years they have been exceptionally busy, and productive.

Among the important recent developments have been glass cloth and glass mat grades for high mechanical strength, and improved insulation of high freqency currents; Pregwood for airplane propeller blades and other mechanical uses; alkali resistant grades for chemical processes, better laminated translucent sheet, sturdier and more decorative Formica finishes.

There are others which will soon be unveiled. All the knowledge of this laboratory is at your disposal when you have a problem in the use of laminated plastics to solve. Ask for it

"The Formica Story" is a moving picture in color showing the qualities of Formica, how it is made, how it is used. Available for meetings of business groups.

ARMY E NAVY

FORMICA

THE FORMICA INSULATION COMPANY, 4668 Spring Grove Avenue, Cincinnati 32, Ohio

Here are 5 TYPES of GATES V-BELTS

ONE of these five types Will Fit Any Need You Have!

Whenever a drive in your plant is wearing out belts faster than it should—or is giving any other trouble—just *pick up your phone* and call the Gates Rubber Engineer.

He can quickly analyze your problem and, in most cases, he can correct the trouble very easily without needing to specify the use of any special-structure belts.

There *are* service conditions, however, under which a V-Belt of special construction can most profitably be used—and your Gates Rubber Engineer can then supply a Gates V-Belt that is precisely engineered to meet the unusual conditions.

The Gates V-Belt of special synthetic rubber is a notable example. As a result of specialized research, Gates developed this synthetic rubber V-Belt and began supplying it in large quantities to industry more than six years ago. Under severe conditions of heat and oil, this Gates special synthetic V-Belt actually outwears any natural rubber belt by as much as 230%.

In your particular application, V-Belts with tension members composed of flexible steel cables —or of rayon cords—may prove to be the most efficient and economical. Again, Gates Static-Safety V-Belts may best fit yur special need.

In any case, the wisest move you can make is to phone the Gates Rubber Engineer. (Just look under "Gates Rubber" in your phone book.) He will come right to your plant—will thoroughly analyze any drive problem you may have—and he will always recommend the practice that will be most efficient and economical for you.

4412

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO 6, **ILL.** 549 West Washington

DALLAS 2, **TEXAS** 1710 N. Market Street

NEW YORK CITY 7, 215-219 Fourth Avenue

BIRMINGHAM 3, **ALA.** 801-2 Liberty National Life Building

DENVER 17, **COLO.** 999 South Broadway

CHARLOTTE 2, **N. CAROLINA** 505 West Fifth Street

GREENVILLE, S. CAROLINA 108 W. Washington Street

ATLANTA 3, **GA.** 738 C & S National Bank Building

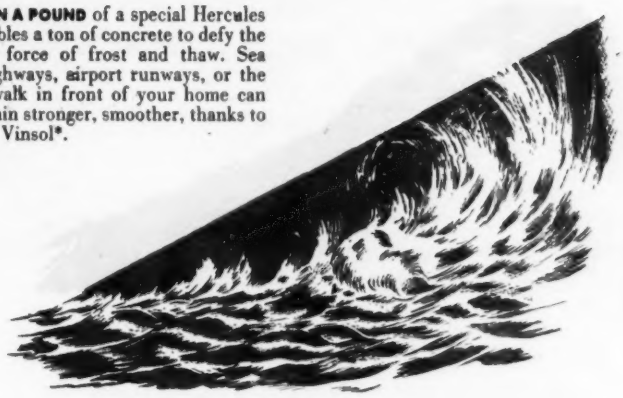
. . . A brilliant record in the field of research

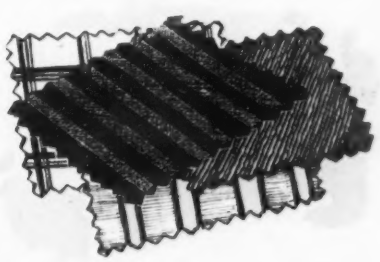
"Hercules outstanding record in the field of terpene and rosin chemistry was made possible by the teamwork of operating men and a laboratory staffed by industry-minded research chemists, physicists, and chemical engineers. They transformed wood rosin, wood turpentine, and little-known pine oil into an array of purified products, tailor-made for special purposes, that today are indispensable to scores of the nation's leading industries.

"A trip through this splendid laboratory is a thrilling experience. Here one finds superb equipment, equalling the finest of the great American and European universities."

DAVID DIETZ, *Science Editor of the Scripps-Howard Newspapers, Author, and Pulitzer Prize Winner*

LESS THAN A POUND of a special Hercules resin enables a ton of concrete to defy the powerful force of frost and thaw. Sea walls, highways, airport runways, or the cement walk in front of your home can now remain stronger, smoother, thanks to Hercules Vinsol*.

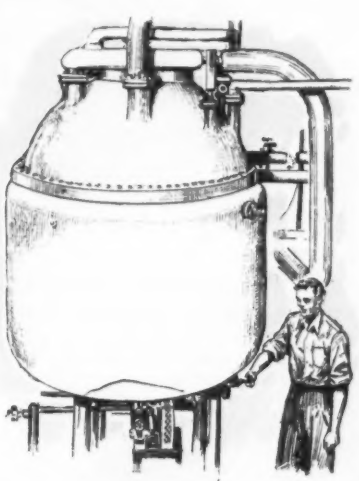




SAVING TIME AND MANPOWER for the textile industry at virtually every processing step is Hercules Yarmor* 302-W Pine Oil. In one large textile mill alone, this specially designed product cut a four-hour operation to two hours and with a cash saving!

CONSERVING CRITICAL MATERIALS is but one important contribution of Hercules Poly-pale* resin to varnish resin producers. This polymerized rosin is permitting savings of glycerin and other scarce materials as high as 30% without sacrificing quality.

LONGER LIFE FOR ADHESIVES is but one of scores of product advantages gained with Hercules Staybelite*, another rosin chemical. Its ability to retain a tacky nature indefinitely is important to modern surgical and industrial tapes, masking compositions, and many other adhesives.



HERCULES

TERPENE AND ROSIN CHEMICALS

*Reg. U. S. Pat. Office by The Hercules Powder Company

OFFER ANSWERS TO MATERIALS PROBLEMS IN MANY INDUSTRIES

HERCULES POWDER COMPANY
INCORPORATED
994 MARKET STREET, WILMINGTON 99, DELAWARE

W.T.-41C

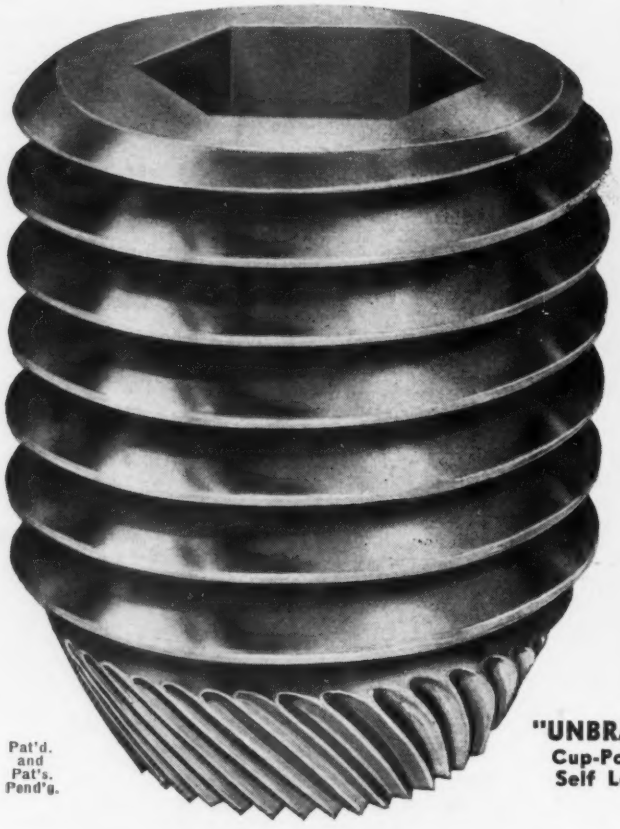
VIBRATION CAN DO ITS WORST BUT--

UNBRAKO

SELF-LOCKING HOLLOW SET SCREWS STAY PUT

Where ordinary cup-pointed set screws fail to hold, "Unbrako" Self-Lockers stay put for keeps because their knurled cup-points dig in when the screws are tightened as usual so vibration can't dislodge them. Yet they can be backed out with a wrench and used again and again. Apply this safeguard against breakdowns in *your* mill.

"UNBRAKO" Self-Locking Hollow Set Screw comes in sizes from No. 4 to 1 1/2" diameter. Full range of lengths.



Pat'd. and Pat's. Pend'g.

"UNBRAKO" Cup-Pointed Self Locker

PATENTED

Fig. 1679

"UNBRAKO" SELF-LOCKER *with Knurled Threads*

"UNBRAKO" SELF-LOCKING HOLLOW SET SCREW WITH KNURLED THREADS

Where the "Unbrako" Cup Pointed Set Screw is not suitable, use our *Knurled Thread* "Unbrako" which, regardless of the style of point, is also a Self-Locker.

The magnified section of the cut at the left shows the locking feature and the angle of the knurls. These positively prevent the screw from backing out once it has been properly set.

We also make WELT-BAR SCREWS. Uniformly strong & accurate "Unbrako" Welt-Bar screws are giving extra satisfaction in hundreds of mills.

For further information on "Unbrako" Screw Products, send for the "Unbrako" Catalog.

Knurling of Socket Screws originated with "Unbrako" years ago.

ARMY E NAVY

OVER 40 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA., BOX 571 • BRANCHES: BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

SATISFYING THE WORLD'S TOUGHEST CUSTOMER

Fittest of the Fleet

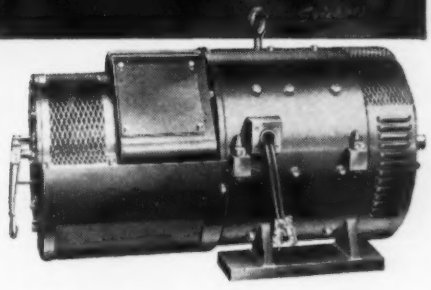
THEY'RE the Fittest of the Fleet – the volunteers who man U. S. submarines.

Relatively few men have the physical stamina, the mental alertness, the iron nerve, that admit them to the submarine service.

Because equipment must match the men, everything that goes into the making of a submarine is built to the strictest specifications on record – must pass careful inspection, endless testing. Knowledge that safety of the submariners depends upon the ability of equipment to stand up under strains of year-long voyages and shocks of battle makes Navy engineers and purchasing agents "tough customers" to satisfy.

Star began building equipment to satisfy these "tough customers" in World War I, and long before Pearl Harbor, resumed making of motors and motor generators for the U. S. Navy. While the Navy does not endorse any product the fact that Star equipment has met and exceeded U. S. Navy specifications for submarine use is positive proof of the engineering ability of this organization.

That engineering ability, developed in years of service for "the world's toughest customer", is at your service in solving peace-time motor problems. Star Electric Motor Company, 200 Bloomfield Ave., Bloomfield, New Jersey.



What's your special motor problem?

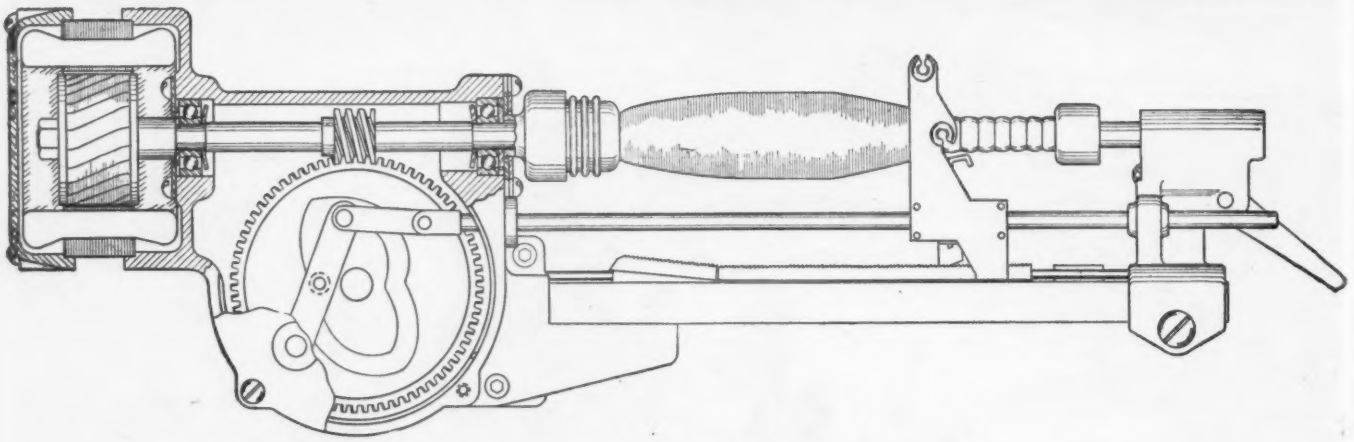
American submarines have a better chance of escaping enemy detection while running submerged because of the Star steering gear motor (above). Extremely quiet operation is achieved by advanced design, including use of a special Star internal expanding shoe brake built integral with the motor. Twelve other types of Star motors are used on U. S. submarines.

Star's Navy record is proof of our ability to handle your difficult motor problems. If a standard Star motor (⅛ to 200 H.P.) does not meet your needs Star can build one that will! We are ready to discuss your post-war plans now.

STAR MOTORS

POWER PACKAGED AS YOU NEED IT

ABBOTT AUTOMATIC QUILLER



A low voltage three phase motor drives the spindle directly

Detectors stop motor when bobbin is full or thread breaks

Double-throw cam gives overlapping layers of wind

Greatly improved weaving results

Diameter and shape of bobbin easily and accurately controlled by feeler working against a stationary rack

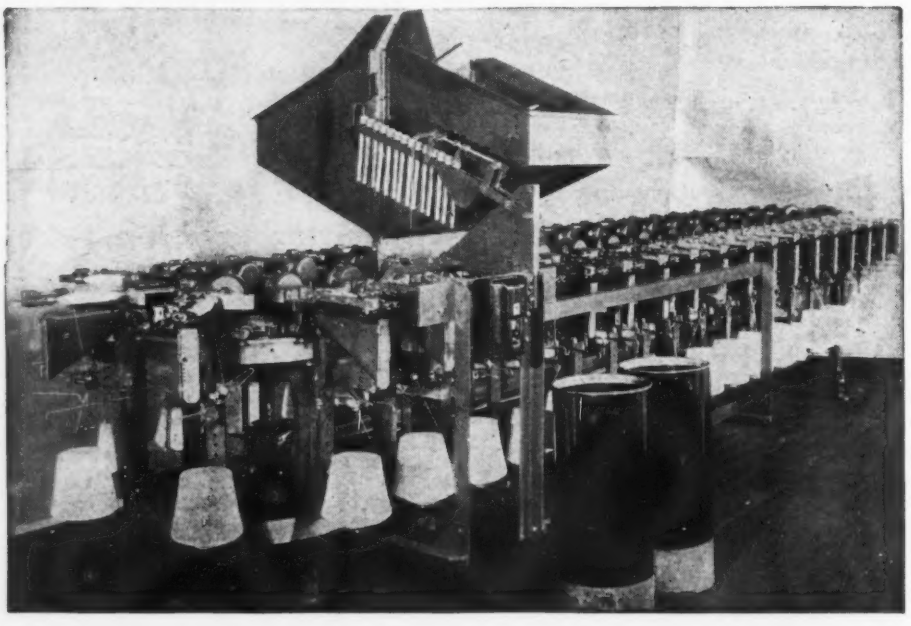
Bunch is controlled by making one adjustment instead of adjusting all winding units.

Spindle speeds up to 5,000 RPM

Winds cotton, worsted, woolen, silk, rayon, etc.

Empty bobbins poured into one large hopper and are sorted and fed automatically

Low investment cost due to simple construction of winding units and use of ONE automatic head to serve all spindles



PRODUCTION:
2,000 bobbins per hour
by one operator

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, L. S. Ligon, Greenville, S. C.

Dainty

curtain materials for a lady's shower

Tough

upholstery and paulins for army trucks

It doesn't make much difference what type of fabric or the degree of protection needed—*our equipment can coat it.*

If your post-war plans call for plastic coated fabrics or papers, we suggest that you investigate our facilities.

Here is a plant with—

— several million dollars in fabric coating equipment specially designed for the application of vinyl resins, pyroxylin and other plastic compounds.

— experience in plastic coating that wasn't developed over-night—we've been coating fabrics for over fifty years. — hundreds of intricate formulas covering many types and degrees of fabric protection, developed by our own chemists.

You tell us what is expected of the plastic coated fabric called for in your plans—where and how it will be used—against what must it be protected. We will help you select the fabric construction and formulate the correct plastic coating to meet your requirements.

Today we are turning out millions of yards of plastic coated fabrics and papers that are being subjected to grueling punishment in every part of the world. Samples of these materials are available for your inspection on request.

See us soon, for once our facilities are no longer required in the production of coated fabrics for the armed forces they will be at your service.

Joanna
Coated Fabrics

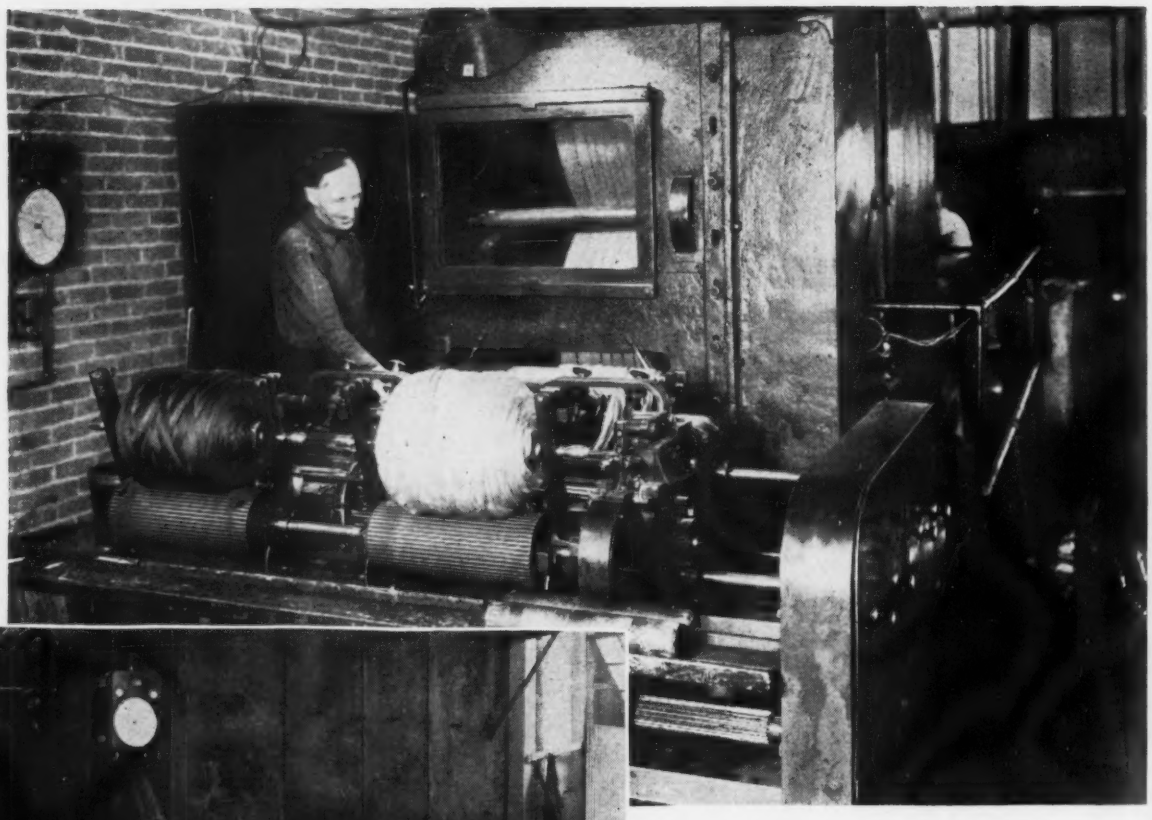
PLASTIC FABRICS DIVISION

The Western Shade Cloth Company, 22nd & Jefferson Streets, Chicago 16

Plastic Fabrics Division: VINYL RESIN, PYROXYLIN AND OTHER PLASTIC COATINGS • PROOFED FABRICS AND PAPERS • SIMULATED LEATHERS
Industrial Fabrics Division: RUBBER HOLLANDS • VARNISHED SEPARATOR CLOTH • BOOK CLOTHS • AND OTHER SPECIALIZED FABRICS
Window Shade Division: WINDOW SHADE CLOTH, ROLLERS AND ACCESSORIES • CLOTH AND PAPER WINDOW SHADES

EXPORT OFFICE: 40 WORTH ST., NEW YORK 13, NEW YORK • JOANNA TEXTILE MILLS, GOLDVILLE, SOUTH CAROLINA

HOW TO GET "IN-BETWEEN"— Neither too HOT nor too COLD . . .



Bristol improves quality and saves costs by controlling temperature in processes where too *much* heat impairs product quality and wastes steam and too *little* heat results in poor processing!

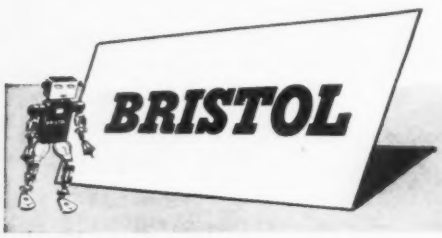
In one Canadian woolen mill where a Bristol Temperature Controller is at work, the manufacturer recently told us, "*The improvement in quality is so great, we would continue to use The Bristol Controller, even if steam costs had been increased instead of decreased.*" Here, steam savings alone amounted to $84.00 a month. In a Pennsylvania woolen plant another Bristol Temperature Controller paid for itself in two weeks on steam saved.

However, steam savings are minor compared to the *increased production, improved quality* and *uniform drying* that results from automatic temperature control. Bristol's complete line of instruments for the textile industry adds extra quality and profit to every yard of finished goods.

Write today for free Bulletin T 800 on Temperature Controllers.

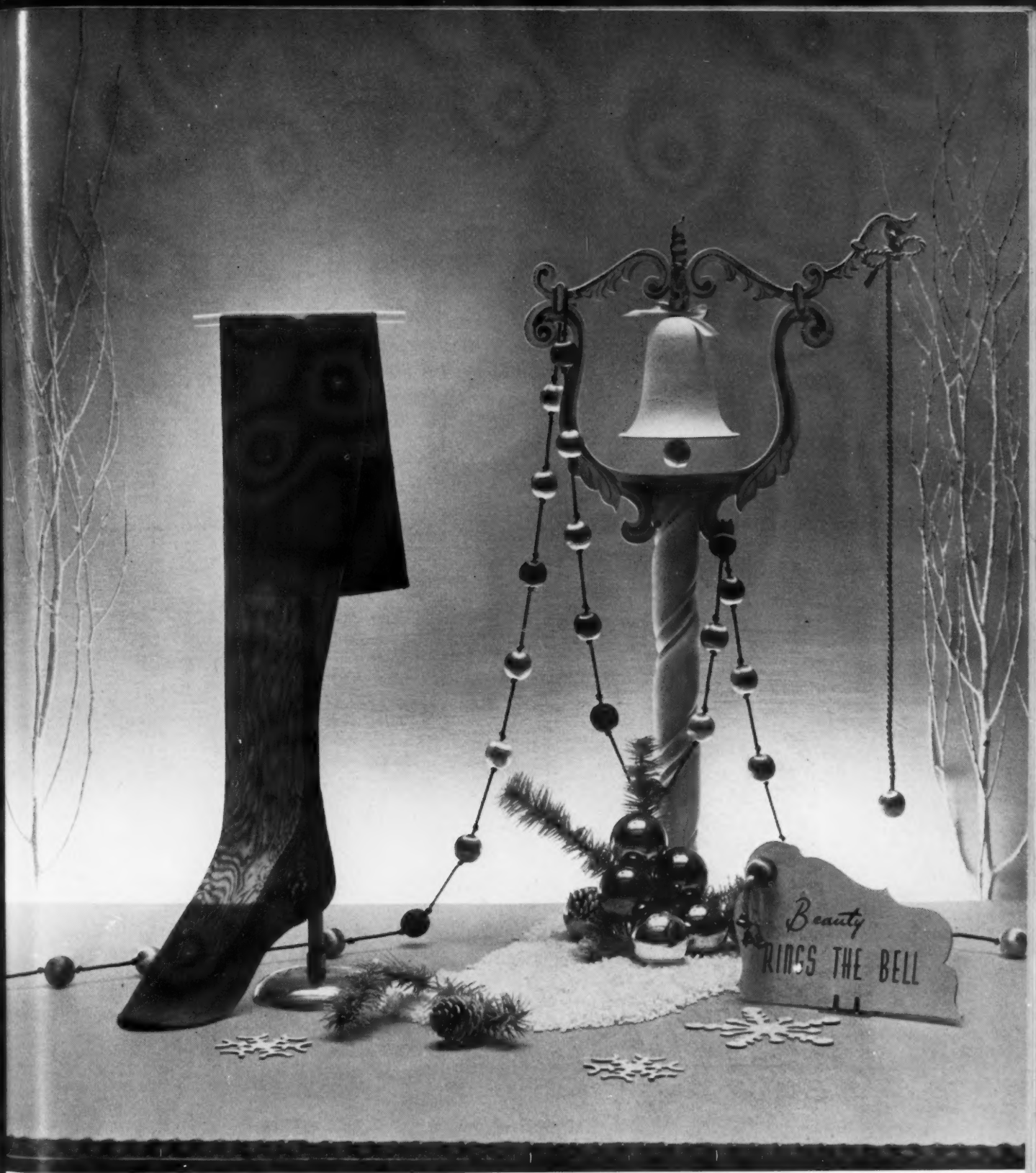
OTHER BRISTOL AUTOMATIC CONTROLLERS AND RECORDERS FOR TEXTILE PURPOSES

1. Recording Temperature Controllers for Bleach Kiers.
2. Continuous pH Controllers and Recorders.
3. Humidity Recorders for Carding, Combing, Drawing, Spinning, and Weaving.
4. Automatic Temperature Controllers for Mercerizers.
5. Power Plant Instruments.
6. Tachometers for Yardage through Tentering Dryer.
7. Automatic Control for Dye Jigs, Dye Machines and Dye Kettles.
8. Flow Meters for Measuring Steam to each Department.
9. Automatic Control for Washing and Bleaching Equipment.
10. Slasher Control Systems.



Engineers Process Control for Better Products and Profits

THE BRISTOL COMPANY
157 Bristol Road, Waterbury 91, Conn.
The Bristol Co. of Canada, Ltd. Toronto, Ontario
Bristol's Instrument Co., Ltd. London, N. W. 10, England
AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS



Beauty Rings the Bell . . . It takes perfect beauty — like flawless, full-fashioned stockings — to complement a holiday spirit. Every stocking manufacturer knows that only the best needles produce even-texture in full-fashioned knitting. Keep your Knitting Machines young and effective with TMW Needles . . . *And remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

TEXTILE MACHINE WORKS • READING, PA.

"You can't win a race by putting a new saddle on an old horse."

WISE SAYING

Until the Victory is Won! . . . The men and experience back of Reading Full-Fashioned Knitting Machines are enlisted for the duration. We *cannot as yet* give you new machines — but we *will* do the next best thing: Our engineers will do their utmost to help you keep your present equipment at highest efficiency. *Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and bigger profits.*

TEXTILE MACHINE WORKS • READING, PA.

THE WAR DECORATIONS OF TEXTILE MACHINE WORKS

Bur. of Ord. Flag and Navy "E" *July 25, 1941*

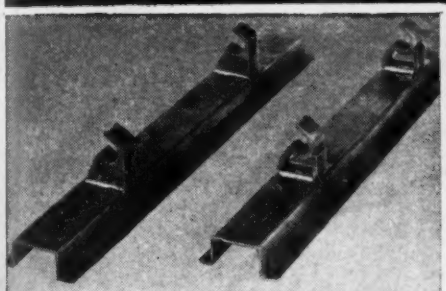
One Star All-Navy "E" Burgee *January 25, 1942*

Two Star Army-Navy "E" *July 25, 1942*

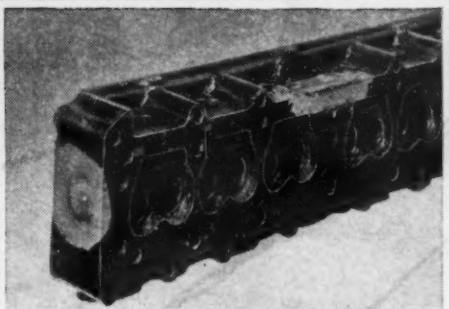
Three Star Army-Navy "E" *January 25, 1943*

Four Star Army-Navy "E" *January 11, 1944*

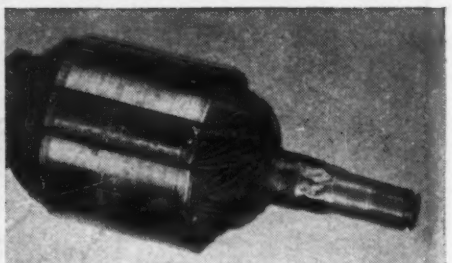
AVOID WELDING DISTORTION STRESSES AND OVERHEATING



Arc welding bombsight hanger on frame member of plane produced severe warping and misalignment. Eutectic Low Temperature Welding prevented distortion and formed strong joints.



Cast iron motor heads are safely repaired without danger of subjecting to stresses, eliminating need for costly and lengthy after machining always necessary to correct distortions.



Worn motor armature shaft resurfaced by Eutectic Low Temperature Welding completely avoiding warping of shaft and preventing destruction of windings by excessive heat.

WITH EUTECTIC

EUTECTIC (Pronounced U-tec-tic) Reg. U.S. Pat. Off.

Low Temperature WELDING RODS

Every day—there are jobs that can be done *better* the EUTECTIC way. *Try it today!*

Bond metals at temperatures as low as 340° F. Reduce heat consumption . . . cut welding costs

Now, without resorting to high temperatures, you can gain the advantage of the strong bonds formed by fusion welding.

The most revolutionary welding development of modern times—EUTECTIC *Low Temperature* Welding enables you to join metals at temperatures below the fusion points of base metals.

Eutectic welding rods and fluxes are available for joining all metals by means of gas—arc—induction—furnace and all standard methods of heating.

Try Eutectic for Production—Salvage and Maintenance welding.

EUTECTIC WELDING ALLOYS COMPANY • 40 WORTH STREET, NEW YORK 13, N. Y.

☐ Send me full information for purchasing *introductory assortment* of important Eutecrods for Production Salvage and Maintenance welding.

☐ Please send me The Eutectic Catalog HN 1. containing complete information about Eutectic Low Temperature Welding and its 6 great advantages.

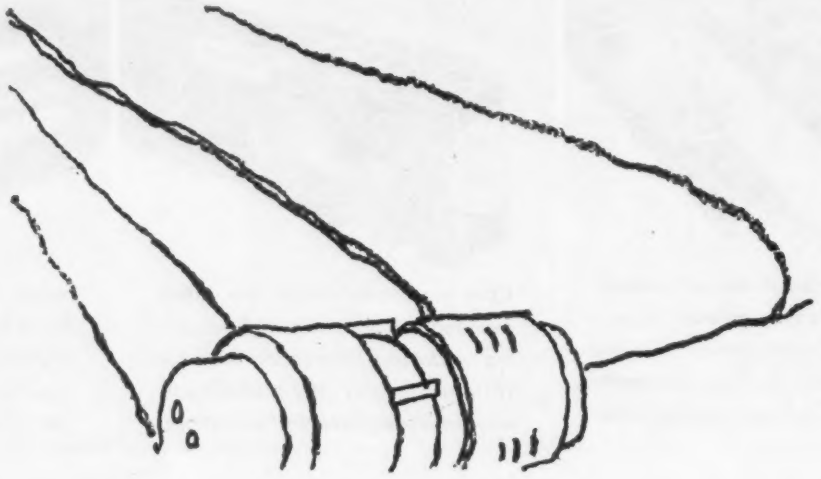
Name_____ Position_____

Company_____ Address_____

A FIBERGLAS* CASE HISTORY

REWIND REQUIREMENTS REDUCED 75%

. . for motors operating 168 hrs. per week



FIBERGLAS INSULATION extended period between rewinds from 90 days to over a year

Continuous service for over a year and still going strong instead of rewinding every 60 to 90 days—that is one of the advantages gained by a major steel company (name on request) when the specifications were changed to Fiberglas insulation.

Four 440 hp motors drawing 18,000 amps from a 220-volt output are used by this company for barge loading. They operate outside, 24 hours per day, 7 days a week.

When impregnated Fiberglas was applied, it overcame the limitations of the organic insulating material with which the motors were previously wound. The frequent costly interruptions for rewinding have been stopped. And after more than a year of continuous operation there is no indication of insulation failure.

Fiberglas Insulation Advantages

Being inorganic, the glass fibers have low moisture absorption, and will not burn or rot. Fiberglas insulation materials have high tensile strength . . . will not shrink or stretch in the presence of heat or moisture . . . are resistant to high temperatures, acids, corrosive vapors. Impregnation of Fiberglas results in still further electrically and mechanically important advantages, such as high dielectric strength and insulation resistance. And in addition the use of the right impregnants correctly applied increases the effectiveness and efficiency of many of the inherent characteristics of Fiberglas.

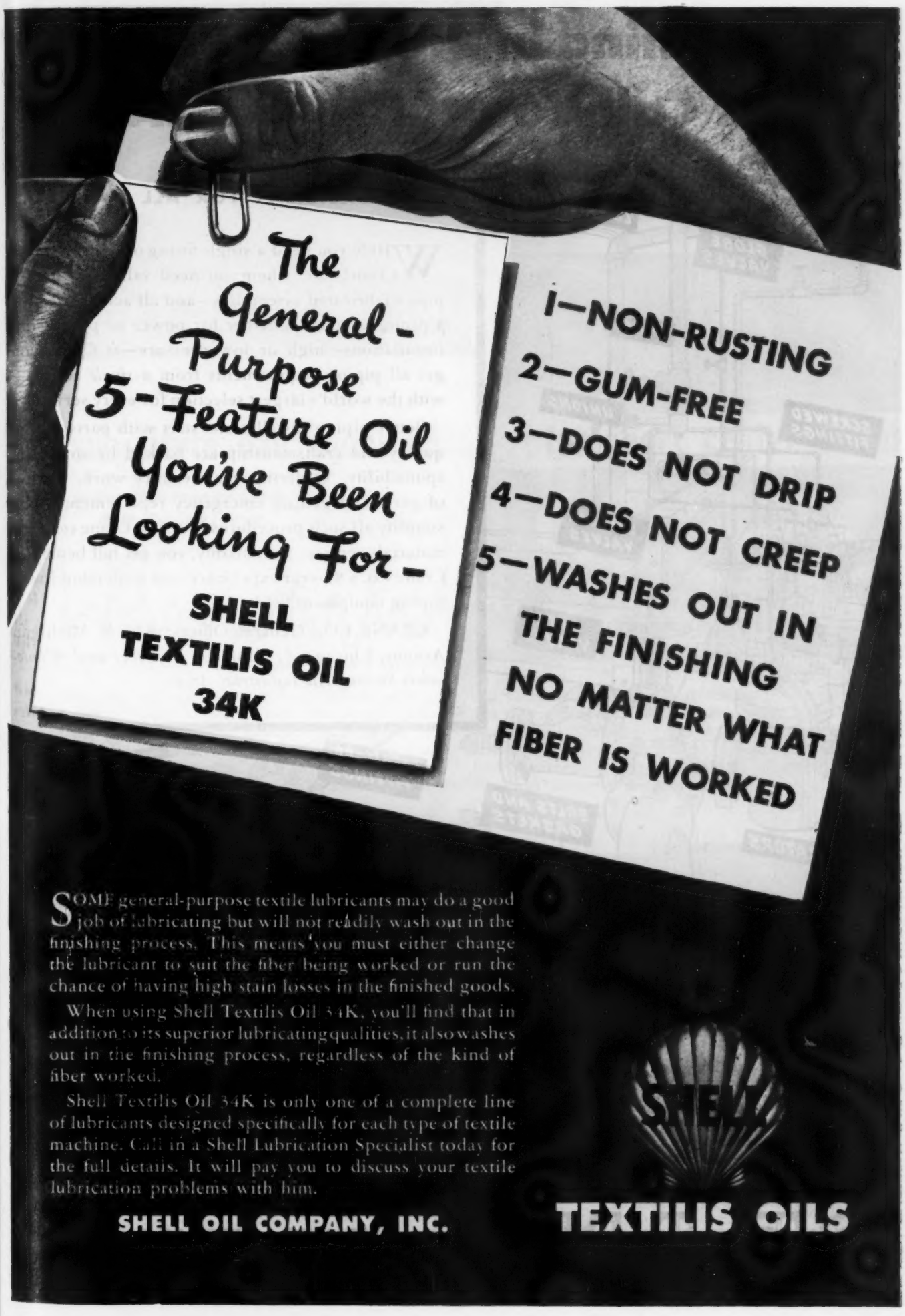
Ask your motor manufacturer about Fiberglas-insulated motors. Or, if you are having motor failures, ask your repair shop to use Fiberglas on the next rewind job.

Fiberglas electrical insulation materials, plain or treated, are now available. For complete information call your distributor or write *Owens-Corning Fiberglas Corporation, 1864 Nicholas Building, Toledo 1, Ohio. In Canada, Fiberglas Canada Ltd., Oshawa, Ontario.*

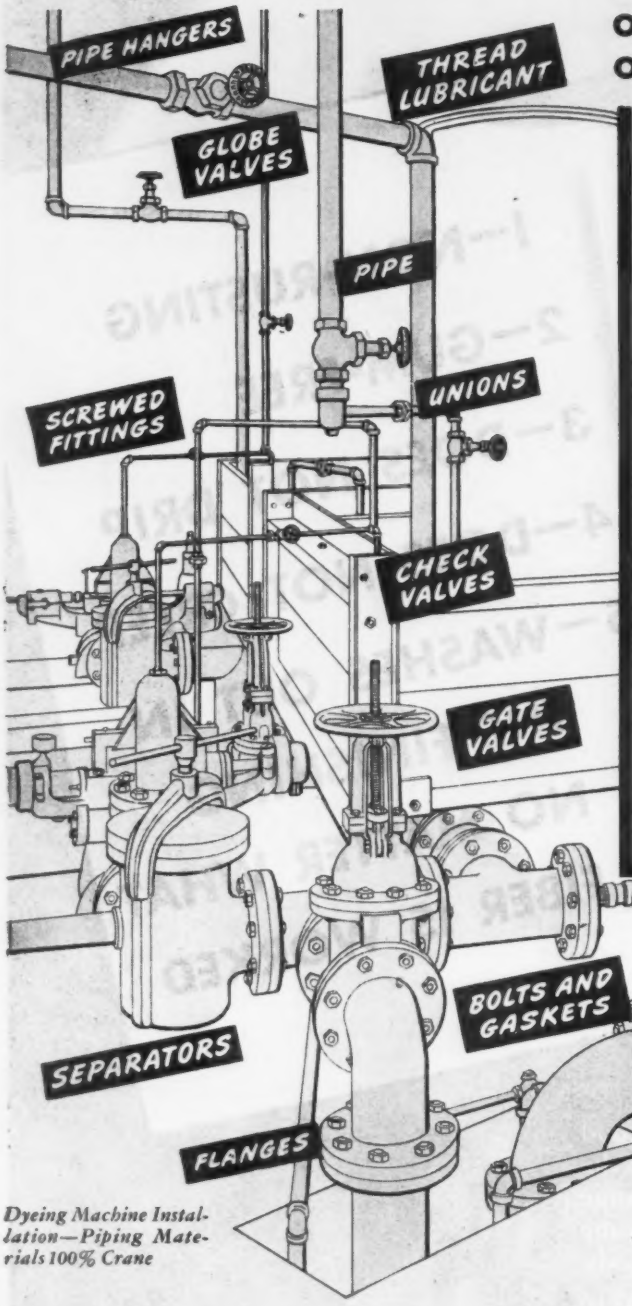
FIBERGLAS* ***ELECTRICAL INSULATIONS***

*T. M. Reg. U. S. Pat. Off.

YARNS • TAPES • CORD • SLEEVING • CLOTH AND OTHER FORMS


The General-Purpose 5-Feature Oil You've Been Looking For—
SHELL TEXTILIS OIL 34K
1—NON-RUSTING
2—GUM-FREE
3—DOES NOT DRIP
4—DOES NOT CREEP
5—WASHES OUT IN THE FINISHING NO MATTER WHAT FIBER IS WORKED
SOME general-purpose textile lubricants may do a good job of lubricating but will not readily wash out in the finishing process. This means you must either change the lubricant to suit the fiber being worked or run the chance of having high stain losses in the finished goods.
When using Shell Textilis Oil 34K, you'll find that in addition to its superior lubricating qualities, it also washes out in the finishing process, regardless of the kind of fiber worked.
Shell Textilis Oil 34K is only one of a complete line of lubricants designed specifically for each type of textile machine. Call in a Shell Lubrication Specialist today for the full details. It will pay you to discuss your textile lubrication problems with him.
SHELL OIL COMPANY, INC.
TEXTILIS OILS

For Anything in Piping Equipment ...Just Call Your CRANE BRANCH



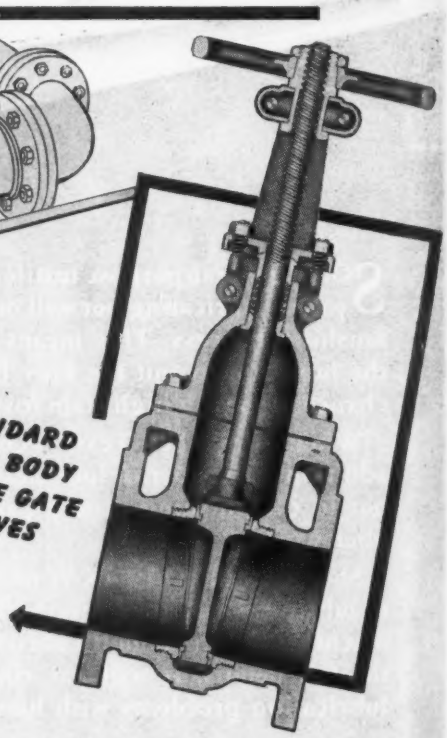
Dyeing Machine Installation—Piping Materials 100% Crane

ONE SOURCE OF SUPPLY . . .
ONE RESPONSIBILITY FOR ALL MATERIALS

WHEN you need a single fitting of any sort—call Crane! Or, when you need valves—fittings—pipe—fabricated assemblies—and all accessories for a piping system. Whether for power or processing installations—high or low pressure—at Crane you get all piping requirements from a *single* source—with the world's largest selection for every service.

Better piping installations start with parts whose quality and craftsmanship are backed by single responsibility. Ordering, maintenance work, storing of parts and getting emergency replacements—you simplify all such procedures by using Crane *complete* materials service. But, mainly, you get full benefit of Crane Co.'s 89-year experience and leadership in the piping equipment field.

CRANE CO., General Offices: 836 S. Michigan Avenue, Chicago 5, Illinois. *Branches and Wholesalers Serving All Industrial Areas.*



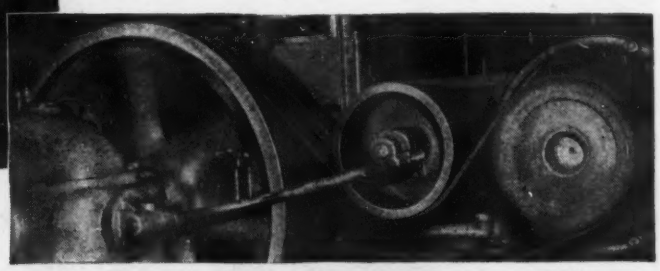
ONE STANDARD OF QUALITY

To equip throughout with Crane materials insures one high standard of dependability from end to end of piping systems. For example, in Crane Iron Gate Valves: Strong body sections resist severest strains. Straight-through ports give streamline flow. A deeper stuffing box lengthens packing life. Extra long guides keep disc travel true, while finest design in every part assures smooth, positive operation and long life.

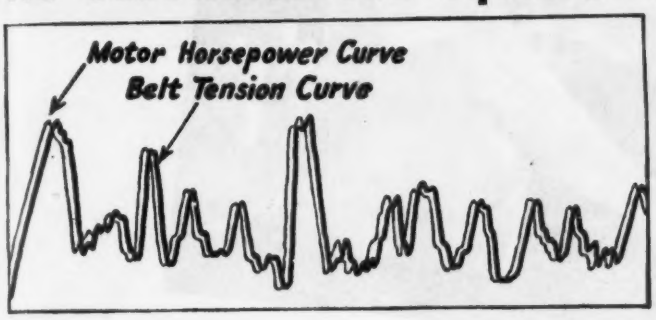
CRANE

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

In this rubber plant, a leather belt replaced a rubber belt. On a compressor drive (48″ x 16″ pulley), the rubber belt, unsatisfactory, was replaced by a "Research" leather belt and the 100 HP, 870 R. P. M. motor (16″ x 16″ pulley) placed on a pivoted base. The gravity idler pulley which had caused trouble due to the idler arm bearing wearing and throwing the belt out of adjustment, was eliminated. The "Research" belt has required no servicing except for minor base adjustments.



No substitute can equal THIS . . . for short center drives



Put the motor on a pivoted base . . . belt the pulleys with a "Research" leather belt. The pivoted base will adjust belt tension automatically according to the load . . . saving unnecessary wear on belt and bearings. The flexible, high-friction "Research" belt will hug the small pulley with minimum slip and will take the continual flexing without excessive wear or waste of power. Will outlast a rubber V-belt on a corresponding drive by at least 2 to 1 . . . Shown above: G & K's exclusive prestretching according to hide characteristics, responsible for the non-stretch feature of "Research" belting.

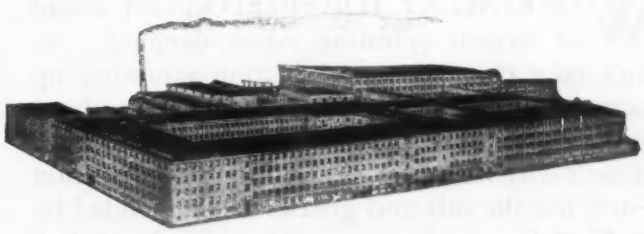
Extra Values from "Research" Belting's

"DOUBLE PLUS"

(all that's *better* in leather, made *best* in "Research")

- **MORE PRODUCTION** with leather belts because of leather's superior traction, which improves with age.
- **MOST PRODUCTION** with "Research" because "Research" processing adds extra pulley grip. 3% more production guaranteed.
- **LESS MAINTENANCE** with leather belts because natural "give-and-take" handles shock loads without undue strain.
- **LEAST MAINTENANCE** with "Research" because prestretching removes non-elastic stretch, saving take-ups.
- **LONGER LIFE** with leather belts because leather's tough, interlocking fibres have high resistance to both surface wear and internal friction.
- **LONGEST LIFE** with "Research" because the prestretched fibres are properly lubricated by precise, "weight-controlled" currying.

3% MORE PRODUCTION . . . 2 TO 4 TIMES LONGER LIFE . . . FROM "RESEARCH" BELTING'S DOUBLE PLUS

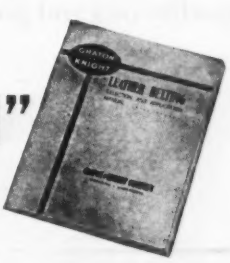


MORE UNIFORM results can be guaranteed because "Research" Belting is manufactured from green hide to finished belt under one roof, under one control, in the world's largest industrial leather plant.

NEW BELTING MANUAL. Complete information on selecting proper type and dimensions. Price lists included. Write 326 Franklin St., Worcester 4, Mass. for "G & K Leather Belting Manual".

GRATON AND KNIGHT

"RESEARCH" BELTING



Graton & Knight Company, Worcester 4, Mass.

Branches and distributors everywhere. Look under "Graton & Knight" in "Belting" section of classified telephone directory or THOMAS' REGISTER.

PERKINS HOLYOKE

For the Textile Industry

Cotton Rolls	Schreiner Calenders
Cotton and Wool Rolls	Silk Calenders
Combination Rolls	Embossing Calenders
Husk Rolls	Cloth Pilers
Paper Rolls	Water Mangles
Chasing Calenders	Dye Padders
Embossing Rolls	Squeezers
Friction Calenders	Washers
Rolling Calenders	Automatic Winders

Mullen Testers

THE FAR EAST

Frontier for American Enterprise

IN THE great tradition of America, our frontier lies to the West. But for a United States that stretches from the Atlantic to the Pacific, to Go West is to arrive in the Far East. The feet of literally millions of our young men are now set upon that route.

Accomplishment of their objective—the defeat of Japan—will not end our responsibilities to the Orient any more than the defeat of Germany will end our responsibilities to Europe. This time we mean to see the venture through.

The first sketch of a political program for enlisting the strength of nations of good will to enforce the peace was drawn at Dumbarton Oaks. That is a good start. But those who participated know how much work remains before the blueprint becomes a fully matured plan, the plan becomes a structure, and the structure takes life and effective being in the living imagination and will of the peoples of the world.

No political accord, however high its purpose, can endure for long if it depends upon the loyalty and support of populations embittered by hopeless poverty that is offered no promise of relief. The poisonous dust of mass despair makes inevitable an ultimate explosion, whether it be sparked by a torch supplied from without or by its own internally generated heat. Much of the Far East is sufficiently close to that position to pose a grave problem to the Western world. It is of particular importance that American business men and workers alike recognize the nature of their responsibility in the matter, for to them the great area of the East presents also an opportunity and a challenge.

☆ ☆ ☆

The Orient—stretching in a vast semicircle from Manchuria and Japan to India and Ceylon—is the home of more than a billion people, the world's greatest potential market. In its mountains are the earth's richest stores of tin and mica; its deposits of iron ore, coal, and manganese rival those of France, Russia, and the United States. Its rice paddies are the most productive in the world, its coconut and rubber plantations the largest, and its cotton production is of major volume.

And yet, this fabulous region—with its riches of manpower and raw materials—suffers from living standards at the lowest rung of the world scale. With as much as 85 per cent of the populations of this great area devoted to the production of farm products, starvation has been an endemic plague to countless millions of its inhabitants, and will remain so until they graduate from the crudely primitive methods of the crooked stick and the bamboo plow to the use of the implements of a modern world in both agriculture and industry.

The improvement of agricultural methods and the burgeoning of industrial development depends upon tools—a preponderance of simple tools, no doubt, at the beginning, for modernization of economic processes is a development that cannot be forced at a rate faster than the ideas upon which they depend can be developed. If we, in the United States, are to hope to supply a major portion of the implements upon which the salvation of the East depends, we must be prepared to export also the skills and technologies which will make their effective use possible.

The possibility of a world market for machinery and manufactured products is a challenge that American industry cannot afford to ignore. The United States will emerge from the war with almost half of the world's industrial capacity within its borders, with much more than half of the heavy industries. Drastic and painful readjustments are inevitable; but they can be mitigated to the extent that we can find outside markets for the products for which we have excess capacity.

We shall find ourselves, at war's end, in a singularly favored position to compete in any equipment markets which are open. It is not merely that we shall have the productive capacities crying for outlets. Aside from Germany and Japan, which for some time will not be in a position to compete, our two major industrial Allies, Great Britain and Russia, will face enormous tasks in providing for their own rehabilitation. Neither of them is likely to be in a position to export more capital than they absorb; and although Canada, Sweden, and Switzerland will be, the United States will stand alone as the one major creditor nation in the world. If the potential advantages of this position are managed with wisdom and imagination, they will enormously enhance our opportunities for supplying a great share of the capital goods demand of undeveloped areas.

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What is the dimension of the Far East's potential demand? What are some of the difficulties standing in the way of its being realized?

If needs were the only measuring stick, the Far Eastern market would provide a bottomless pit into which even the great stores of our exportable capacity could be poured with room to spare.

China, alone, with its teeming population of 450 millions, has spelled out needs in dimensions large enough to stir the imaginations of the equipment producers of the world.

Business Week (February 5, 1944) supplements Dr. Sun Yat-Sen's spacious first estimates of the requirements for a thorough-going industrialization program with figures provided by current Chinese planners—25,000 locomotives; 300,000 freight cars; 20,000 passenger coaches; 20,000,000 tons of steel; and 90,000 power driven machine tools for the first five years of reconstruction. An American manufacturer of farm equipment, who recently surveyed the agricultural requirements of China, estimates an ultimate Chinese market for 20,000,000 tractors.

India's drawing-board plans are equally expansive. According to the bold pattern drawn up by a group of Bombay industrialists—some of whom are due to visit the United States early in 1945—India, after the war, will require a capital investment of $2,000,000,000 a year over the next 15 years, of which $250,000,000 per year for the first seven years will be in the form of imported capital goods.

Included on the huge import order list of the Bombay executives are mining, roadbuilding and power station equipment, heavy locomotives, metallurgical plants, agricultural machinery, and a long list of machine tools.

There can be no question of the need of these countries for the industrial equipment—and for many items of manufactured goods—which we are so eminently in a position to supply. But realism requires that we measure this demand against the Far East's probable capacity in the relatively near future to absorb industrial goods.

A Chinese economist has estimated that China, in 1937, had a total industrial capital investment of about $1,000,000,000 in American values, or something like $2.50 per capita of population. In contrast, the American investment, in manufacturing facilities alone, is now more than $600 per capita.

What it could mean in terms of capital goods requirements if China alone carries out this dream of modernizing, not to the utopian level of the United States but to the present modest level of the less developed Soviet Union, is typified by measuring just three lines: 500,000 tons of steel a

year, for five years, to add 12,500 miles to the railroad system; 2,187,500 motor vehicles; 3,300,000 telephones.

But it is one thing to cite mountainous figures demonstrating needs. It is another, and far less optimistic exercise, to find assurance that practical opportunities for satisfying such needs can be made to materialize. Let us face some of the major difficulties and see if they are insurmountable.

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The first hurdle to be cleared is the question of whether or not we want to promote the industrialization of the Far East. The wisdom of doing so has been vigorously challenged. The negative argument, on the economic side, generally runs thus: If we provide industrial equipment to backward economic areas, we deprive ourselves of the greater long-run opportunity of selling them manufactured articles which our aid has enabled them to produce for themselves.

It is only fair to say that such a thing might happen—that it has happened in isolated instances in the past. But the overwhelming weight of economic history demonstrates that the broader attitude is also the profitable one.

The United States itself is the living refutation of the fear which now cramps the outlook of many of its own citizens.

From 1790 until 1850 the foreign trade of our new fledged Nation had many of the characteristics which pertain to the trades of China and India today. We imported manufactures and we exported raw materials, agricultural products, and newly mined gold. Our imports exceeded exports, the difference being made up partly by payments to us for shipping services and partly by industrial development loans. It is relevant to inquire how the trade of the lenders was affected by this policy of supplying us with industrial capital and machinery.

From 1850 through 1939 the pattern of America's foreign trade changed. Slowly at first, and then at accelerated pace, our import ledger showed a percentage decline in manufactured goods and a percentage rise in raw materials to feed our expanding industrial facilities. But while finished manufactures declined percentagewise in our import budget, so great was the increase in our total foreign trade operations in the century from 1830 to 1930 that our imports of manufactured goods increased more than twentyfold, and they more than doubled between 1900 and 1939.

Clearly industrial Europe gained rather than suffered from the industrialization of the United States, and it is equally clear that we, in turn, shall benefit from the industrialization of the world's undeveloped territories. Further evidence is provided by Canada which, with its high industrial development but only 12 million people, buys from us each year almost as much as the relatively unindustrialized 130 million people south of the Rio Grande.

If it be granted, as I believe it must, that the development of Far Eastern countries will be to our advantage as well as theirs, the second question that we should face is the speed with which it can be accomplished. Is there genuine promise in the proximate future of opportunities for American enterprise of the magnitude set forth in the estimates quoted above?

In all fairness, I am forced to state my conviction that the road is longer than is indicated by Chinese and Indian leaders. It is natural, and far from censurable, that their eyes should be focussed upon the urgency of national needs, rather than upon obstacles in the way of their fulfillment.

On the other hand, it is possible that our own long process of industrialization may lead us to conclusions of undue conservatism. Ideas, once they break the crust of resistance are the most contagious of bacteria, and the tempo of their infiltration seems to increase by geometrical progression in a world of swift communication.

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In an interesting recent study of The International Labor Office, it is suggested that the general economic level of the rest of Asia outside Japan in the late 1930's was not dissimilar to that of Japan in 1900. Between 1900 and 1936, Japan increased its total capital investment more than threefold devoting between 10 and 17 per cent of its annual income to capital outlays. A comparable tempo of development for China, India, and other Asiatic areas would result in a capital expansion that would dwarf to insignificance the most optimistic blueprints that have been put forth to date. I am not suggesting this as a likely possibility, but rather as a caution lest we, in the name of hard-headed realism, underestimate Asiatic potentials as much as their own nationals exaggerate them.

Finally, in appraising the outlook for American enterprise in Far Eastern markets, we collide, head-on, with the problem of how we are to be paid. Here, hard-headedness can be only a virtue, for the lack of it will breed inevitable disaster for the Asiatics as well as for us.

In the last analysis, the dimension of the American market in the Far Eastern countries will be determined by the dollar exchange at their command, obtained through the products, goods, and services which they are able to provide to us, with due allowance for multilateral trade arrangements. It is true that the balance temporarily can be distorted through the extension of developmental loans. There is little question but that such loans will be in order after the war, and if they are wisely made, for productive projects that eventually will increase the exporting capacities of the countries to which they are extended, they can be thoroughly justified. But the best loans provide only a temporary expedient. In the long run, the balance of current payments must be restored with sufficient margin to provide interest payments and finally amortization of principal.

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How, then, are we to attack the problem of increasing our imports from the Orient?

In 1937, the total exports of the Far East amounted to something over $5,000,000,000—a little less than $1,500,000,000 in foodstuffs, a little more than $2,500,000,000 in raw and partly manufactured materials, and better than $1,000,000,000 of manufactured articles. Of this total, the United States purchased only about 20 per cent—approximately 10 per cent each of the foodstuffs and manufactures, and 30 per cent of the materials.

Despite changes in our technologies which will probably reduce our future takings of such important items as rubber and silk, the achievement of a high level of economic activity in this country after the war will provide a basis for increasing our Eastern imports, but only if it is an accepted part of our national policy to do so.

This means an alert and aggressive exploration of two-way trade possibilities on the part of both American business and our governmental agencies. It cannot be done by either alone.

The war has dislocated many of the trade patterns that prevailed in the past. The East is hungry for the type of products which we, uniquely, are situated to supply, but it will make its bargains with those who will not only fill its needs but will also provide outlets for its produce. Even the prewar magnitude of the exports from this area provides ample margin for the most meticulous and imaginative shopping of Eastern markets with the aim of increasing the modest share of our prewar purchases. And a farsighted program of development loans can greatly increase the capacity of these countries to produce what we want.

In general, we can trust American enterprise to explore rigorously all likely export opportunities. But the equally vigorous investigation of import possibilities will require a break from past traditions on the part of American business and American government.

Both East and West must learn to think in new patterns for the successful opening of a new frontier.

President McGraw-Hill Publishing Co., Inc.

THESE

SIX SENTRIES

Challenge Every New Development

ON EVERY C&K LOOM

DOES IT INCREASE

Speed of Operation?

DOES IT INCREASE

Ease of Operation?

DOES IT IMPROVE

Quality of Fabric?

DOES IT DECREASE

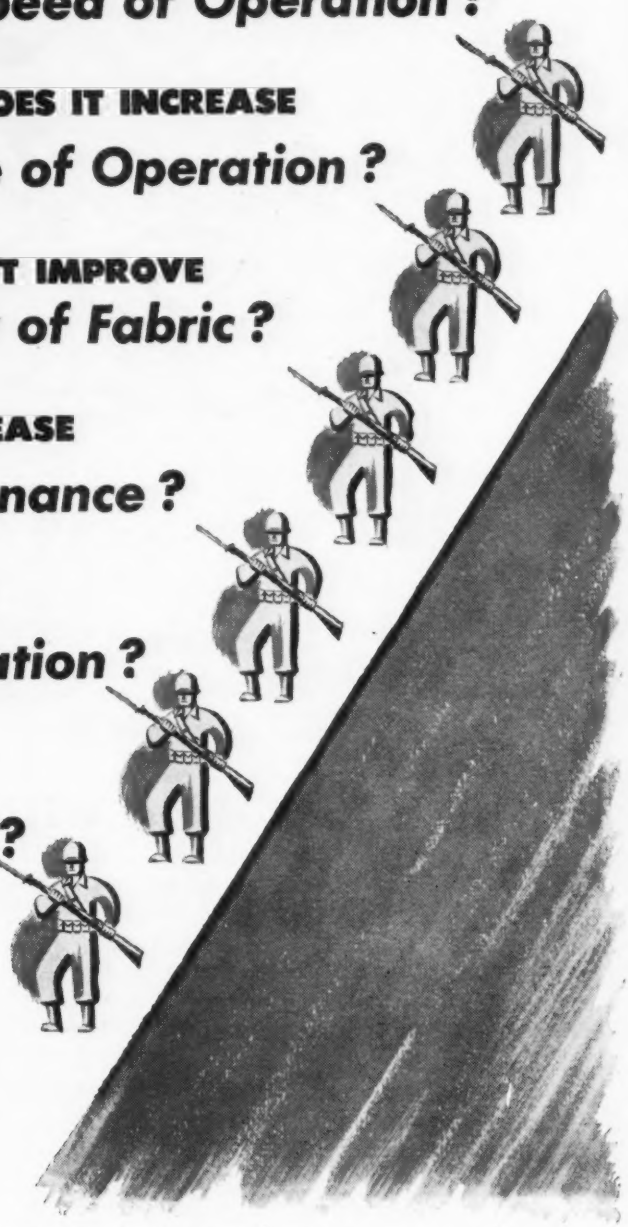
Cost of Maintenance?

DOES IT IMPROVE

Continuity of Operation?

DOES IT IMPROVE

Appearance and Utility?



These six challenges are levelled at every new idea for the improvement of C&K Looms. And if any idea can't meet at least one of these challenges, *then it's not a good idea* — either for us or for your own weave-room efficiency. So it is permanently filed in the wastebasket.

This searching test is being applied, now, to new ideas developed during the war effort . . . ideas involving new materials, methods, and machines. For decades of hard work have taught us, long since, that newness alone has nothing necessarily to do either with practical mechanics or economics.

That's why new improvements in C&K Looms won't come altogether, all wrapped up in one dazzling package, as soon as the war is over. They'll come in due course, when they have proved able to stand up to this 6-point test . . . *which is the best protection you could have, both for your mill and your customers.*

So plan to take C&K Looms as they come along with their proven features. Don't wait for a complete miracle which can never possibly happen, while other mill men pass you by.

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BRIDGING THE GAP

between Today's War Weapons . . . and their New Uses in Tomorrow's Looms

NEW BEAUTY FOR Fiberglas...

printed and dyed with

ARIDYE PIGMENT COLORS!

The development of Fiberglas† gave the textile industry a new type of fiber, flameproof and resistant to rot. But, between the development of Fiberglas and its full utilization for textile products, there was, or rather there seemed to be, a problem. For Fiberglas does not absorb water and is difficult to color with ordinary dyestuffs.

The laboratories of Aridye Corporation, which, as part of Interchemical Corporation, have had the benefit of many years experience in the application of pigments to paper, textiles, glass, cloth bags, metals, plastics and other materials, began several months ago to investigate the dyeing and printing of Fiberglas with resin-bonded pigment dyes. It was quickly discovered that Fiberglas can be dyed and printed readily with the same range of Aridye* colors that are employed on cottons, rayons and acetates.

By proper selection of pigment colors from that range, you can now dye or print Fiberglas fabrics for draperies, shower curtains, bedspreads, lamp shades and table cloths and other decorative uses in shades which have superlative fastness to light. In addition, these colors will withstand dry cleaning and washing, provided there is no undue mechanical agitation of the fabric.

WRITE FOR THIS BOOK TODAY — We will be glad to send you, without obligation, a semi-technical bulletin on "Dyeing and Printing Fiberglas With Aridye Pigment Colors." Write today to Aridye Corporation, a subsidiary of Interchemical Corporation, Fair Lawn, N. J.

*Reg. U. S. Pat. Off. Aridye Corporation

†Reg. U. S. Pat. Off. Owens-Corning-Fiberglas Corporation

Aridye

TEXTILE COLORING MATERIALS

PIONEERING WITH PIGMENTS — one of a series of developments illustrating the advantages of Aridye* pigmented colors in new and significant applications.

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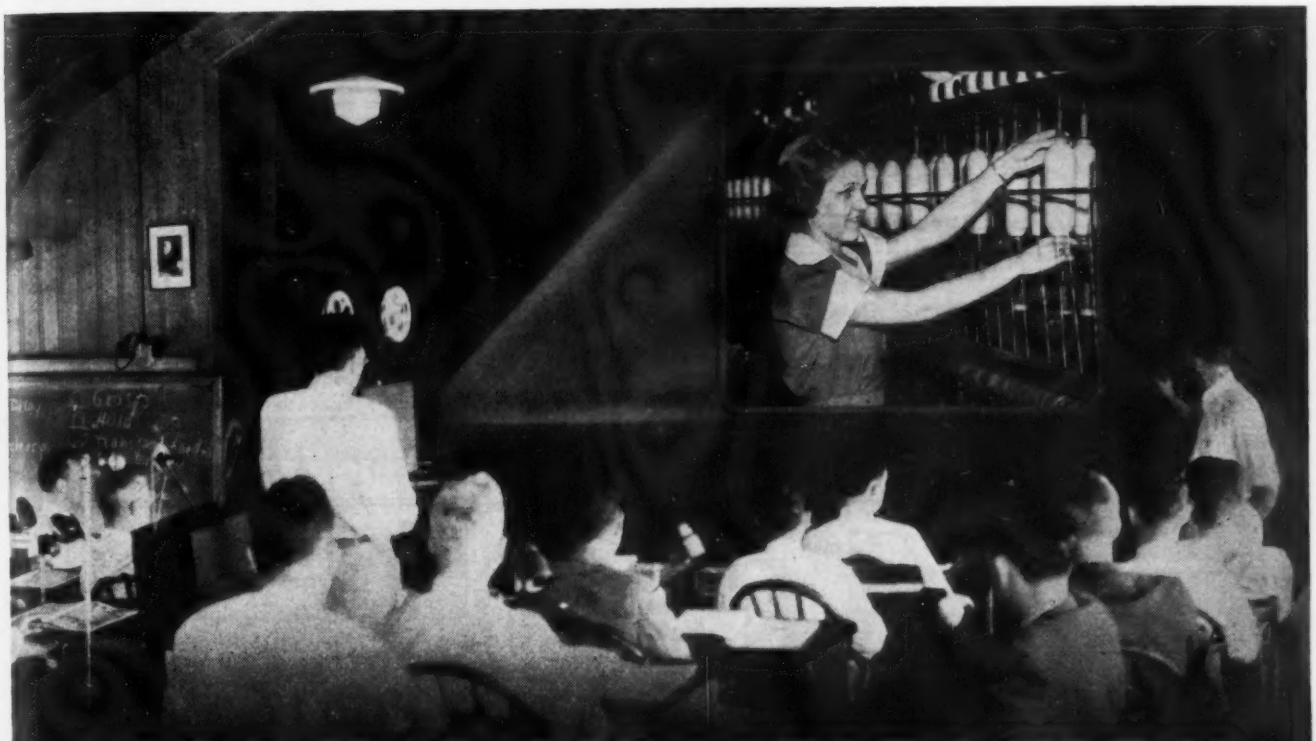


WORK SIMPLIFICATION

A Program for Employees

HIGHLIGHTS: Suggestions from Workers Keystone of Job Improvements — Program Introduced in Many Textile Plants — Motion Pictures Taken to Encourage and Show New Ideas — Elimination of Unnecessary Work Primary Consideration — Flow Process Charts Aid Studying of Operations.

BY C. W. BENDIGO
Assistant Editor, TEXTILE WORLD

AMONG THE TEXTILE UNITS USING WORK SIMPLIFICATION EXTENSIVELY

American Viscose Corp.
Front Royal, Va.
Lewiston, Pa.
Marcus Hook, Pa.
Meadeville, Pa.
Roanoke, Va.

Chicopee Mfg. Co.
Chicopee Falls, Mass.
Manchester, N. H.

Deering, Milliken & Co.
Abbeville, S. C.
Greenville, S. C. (Judson)
Huntsville, Ala. (Dallas)
Lisbon Center, Me. (Farnsworth)
Madison, Me.
Pacolet, S. C.
Spartanburg, S. C. (Drayton)
Union, S. C. (Monarch, Excelsior)
Waterville, Me. (Lockwood)

Marshall Field & Co.
Leaksville, N. C.
Spray, N. C.

E. I. du Pont de Nemours & Co., Inc.
Buffalo, N.Y.
Old Hickory, Tenn.
Richmond, Va. (Spruance)
Waynesboro, Va.

Tubize Rayon Corp.
Rome, Ga.

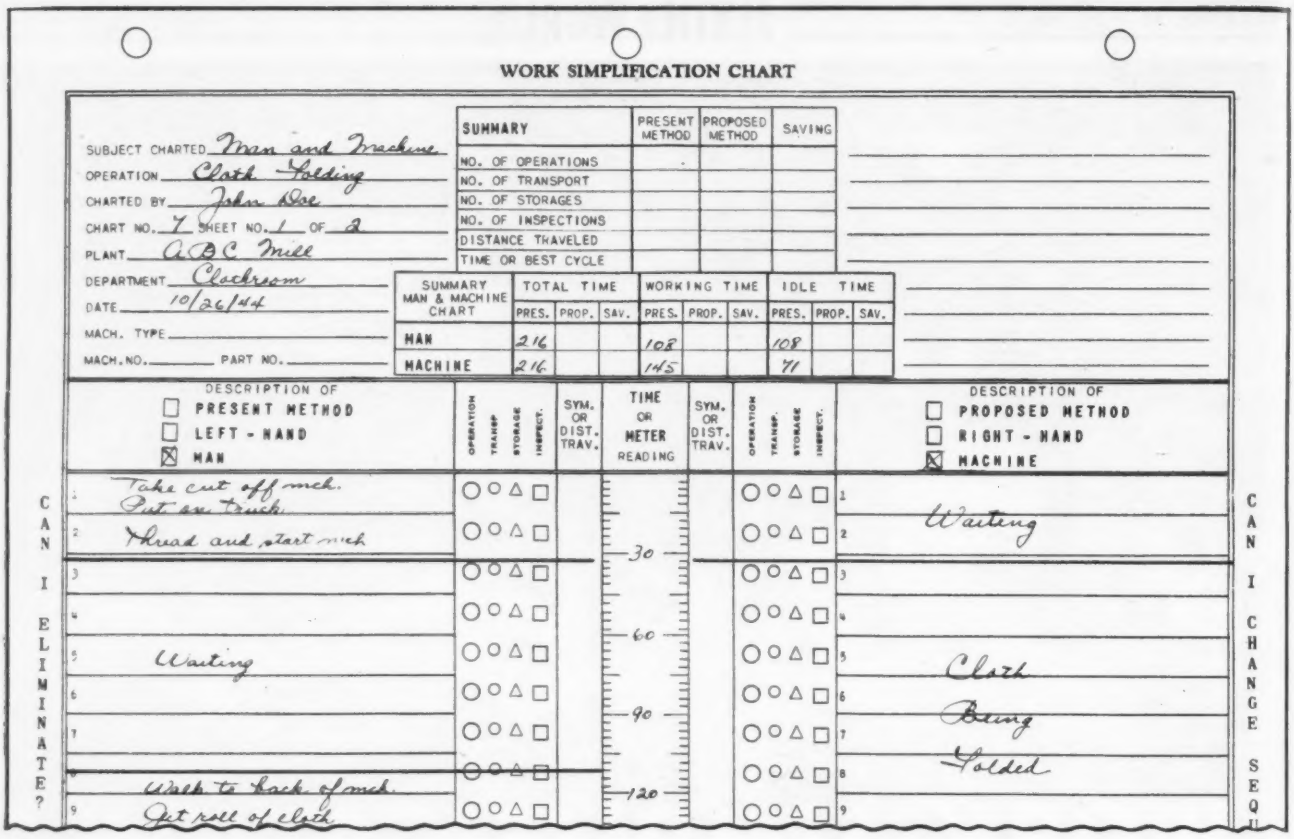
Arkwright Corp.
Fall River, Mass.

York Knitting Mills
Toronto, Canada
5 plants

WORK SIMPLIFICATION in the textile industry is found difficult to define accurately even by Allan H. Mogensen, who has been responsible for its introduction into over twenty textile plants in the United States and Canada. "Work simplification" can mean an analysis of any job, step by step, to find some part of it that can be improved or eliminated; but the whole program includes much more. It actually is a broad base for both psychological and physical improvement in textile mills or in any industrial plants.

Basically, work simplification is merely a program to elicit suggestions from all employees after stimulating inquisitiveness, making provision for adequate recognition, and furnishing material with which to work.

Probably the most fundamental part of the ideal work-simplification plan is to have employees, who generally



WORK SIMPLIFICATION CHART

SUBJECT CHARTED: Man and Machine
OPERATION: Cloth Folding
CHARTED BY: John Doe
CHART NO. 7 SHEET NO. 1 OF 2
PLANT: ABC Mill
DEPARTMENT: Clockroom
DATE: 10/26/44
MACH. TYPE:
MACH. NO. PART NO.

SUMMARY	PRESENT METHOD	PROPOSED METHOD	SAVING
NO. OF OPERATIONS			
NO. OF TRANSPORT			
NO. OF STORAGES			
NO. OF INSPECTIONS			
DISTANCE TRAVELED			
TIME OR BEST CYCLE			

SUMMARY MAN & MACHINE CHART	TOTAL TIME PRES.	TOTAL TIME PROP.	TOTAL TIME SAV.	WORKING TIME PRES.	WORKING TIME PROP.	WORKING TIME SAV.	IDLE TIME PRES.	IDLE TIME PROP.	IDLE TIME SAV.
MAN	216			108			108		
MACHINE	216			145			71		

CAN I ELIMINATE?

	DESCRIPTION OF ☐ PRESENT METHOD ☐ LEFT-HAND ☒ MAN	OPERATION	TRANSP.	STORAGE	INSPECT.	SYM. OR DIST. TRAV.	TIME OR METER READING	SYM. OR DIST. TRAV.	OPERATION	TRANSP.	STORAGE	INSPECT.	DESCRIPTION OF ☐ PROPOSED METHOD ☐ RIGHT-HAND ☒ MACHINE	
1	Take cut off mch.	○							○				1	
2	Put on truck.													
	Head and start mch.	○		△	□				○		△	□	2	Waiting
3		○		△	□		30		○		△	□	3	
4		○		△	□				○		△	□	4	
5	Waiting	○		△	□		60		○		△	□	5	Cloth
6		○		△	□				○		△	□	6	Being
7		○		△	□		90		○		△	□	7	Folded
8	Walk to back of mch.	○		△	□				○		△	□	8	
9	Get roll of cloth	○		△	□		120		○		△	□	9	

CAN I CHANGE SEQ.

Fig. 1. This flow process chart, one of the most important work-simplification "tools," has many uses.

know their jobs best, ask themselves why they are doing the various elements of their jobs and to make improvements. Probably the most useful of the basic materials furnished to supervisors and employees are flow process charts, such as shown in Fig. 1. These flow process charts are being used in textile mills to show (1) a present method compared to a proposed method, (2) relationship of work that the operator does compared to the work that the machine does, and (3) the work that the right hand does compared to the work that the left hand does. They tend to keep suggestions specific, practical, and well thought out. As certain employees become proficient with the use of the simpler aids, basic motion charts, motion-picture analyses, and time studies are introduced.

Work simplification as advocated by Mr. Mogensen is based around a training course given to key personnel from the plants. These trained men then return to their respective plants and conduct work-simplification programs with whatever additional help is needed from the consulting organization.

AWAY FROM PLANT. Customarily, the training program is carried on away from the plant, at least in the case of Mr. Mogensen's organization, which for some years has met at Lake Placid. Starting last winter, an additional one-week course was held at Ponte Verda, Fla., at which 68 men attended who were interested only in work simplification as applied to textiles. A similar 8-day course has just been completed by over 60 top executives from one rayon company—the American Viscose Corp.—and two more are planned for other textile concerns.

Work simplification has been introduced in some textile plants directly by Mr. Mogensen without benefit of the Lake Placid or Florida courses.

At a recent conference which was attended by representatives of the American Viscose Corp. and Abbeville Mills, an improvement was worked out whereby the former concern was able to simplify its packaging of yarn by eliminating two wrapping operations which were found to be entirely unnecessary. The change eliminated 70% of the packaging time. (A strip of film showing this change appears on the cover of this issue.)

Such an improvement is not quite so common as that represented by gadgets. An example is the one by a Judson Mills employee who found it simpler to use a reel of the proper circumference to wind on lease strings and to cut a large number of strings at one time, rather than to measure and cut lease strings individually.

Normally, however, most simplification comes as a result of the use of flow process charts, an example of which can be seen in part in Fig. 1. It shows an initial study made in a cloth-folding department.

It has been found that a normal person can remember only a relatively few items and is prone to overlook many others unless they are recorded; that is the reason for the form shown in Fig. 1. Often a flow diagram is used in addition to a flow process chart. The flow diagram is simply a layout of the area over which the movement of the item being followed is indicated.

The flow process chart or flow diagram often shows backtracking which usually can easily be eliminated by rearrangement of machines or by elimination or combination of operations.

It is often found that a man and a machine, or a right hand and a left hand, alternately wait for each other. Fig. 1 shows an example of this in a cloth-folding department, in which the man waited for the machine to fold cloth and then the machine waited for the man to take the folded cloth away and start a new piece. The obvious solution, of course, was to perform the "make-ready" and "put-away" while the machine was running so far as is possible.

MAKE READY—DO—PUT AWAY. Mr. Mogensen makes a special point of

the waste of time in the "make-ready" and "put-away" portions of a job. He divides work into three phases: "make-ready," "do," and "put-away." Usually it is the "do" operation which receives the most attention and which in most textile plants has been developed to the greatest extent. Relatively little attention is usually paid to "make-ready" and "put-away." These operations are normally accepted as a necessary evil. In actual practice, however, they can often be eliminated, combined, or simplified.

Mr. Mogensen has found a general tendency to want first to simplify a job; whereas, under work simplification, to simplify is the last step considered. The first steps are to ask why the job is being done and just what is being accomplished. Often the answers to these two questions result in a recommendation to eliminate the operation altogether. This can apply either to the job as a whole or to individual phases.

If it is found that an operation or a job cannot be eliminated, three questions should be asked: where is the job performed, when, and by whom? This inquiry is made with the thought of possibly combining the units with some other units or possibly changing the sequence. Only after the five questions "why," "what," "where," "when," and "who" are asked does the question "how" arise to determine whether or not a simpler method can be devised.

Simplification may take many forms, most common of which is a mechanical device for improving the operation. For example, in polishing bobbins it was found that a power-driven spindle, with a foot treadle to engage and release the bobbins to be polished, could replace turning the bobbins by hand. This mechanization increased one particular operator's production by 300%. Later on it was found that a double unit could be used, so that the operator could polish two bobbins at a time instead of one, and this resulted in still greater productivity.

DESIRE TO IMPROVE. At this point, it might be well to pause and consider what stimuli can be applied to make employees want to simplify their jobs and thus increase their productivity. Whiting Williams, who is on the staff at Lake Placid, states that there are four things for which people work: (1) money, (2) fear, (3) hope, and (4) pride. Of these four, pride and money are probably the more effective stimuli.

Most textile plants using work simplification have a system of paying employees for acceptable suggestions, but in many plants the remuneration is not so great an incentive as the recognition which is given an improvement by means of taking a motion picture of the job as performed before being improved and after being improved.

Mr. Mogensen lays great stress on the use of motion pictures to improve jobs. He uses films mainly for stimulation, although they also are used, in the later stages of his program, for micromotion studies. He generally first introduces motion pictures to show how jobs are done at plants other than the one in which the motion picture is being shown. This is done to create a desire among employees to make improvements in their plants similar to those shown in the pictures of other plants. By showing pictures of other plants, he avoids arousing a defensive attitude to justify an operation as it is currently being performed. Dr. Albert Walton, of the American Viscose Corp., puts it this way, "We become emotionally attached to things we are accustomed to even though we dislike them." He points out that there is much less resistance to a change if suggested by the person involved than if suggested by some other person. This is, fundamentally, one of the reasons why a basic part of work simplification is to have as many suggestions as possible come from the person involved rather than from top management.

As a textile plant goes further into the work-simplification program, the camera is used for micromotion studies and for analysis of the performance of various operations. A film of an operation can be run over again and again, as slow or as fast as desired without imposing an undue burden on the operator being studied. Often the same film can be used to let an operator analyze his own work, which generally results in suggestions for improvements—especially if the worker knows an improvement will result in a new film being taken and he will get full credit for his suggestion.

THERBLIGS. As Mr. Mogensen expresses it, when work simplification is first started in a plant, there are certain savings which can quickly be made. These savings he likens to excavating by means of a steam shovel. After the steam shovel has excavated all that it can, a pick and shovel can be used, to be followed by a hand shovel, and eventually a teaspoon if that degree is desired. The teaspoon

STANDARDS MOTION CHART

Dept. Cone Winding Subject Charted: Winding on Foster Winders

Observer J. Jones

Description Left Hand	Code	Therblig	Time in Min.	Therblig	Code	Description Right Hand
Doff Empty Spinning Bobbin and Position Full Bobbin	A				A	
Reach for full bobbin	1	∪		∪	1	Reach for empty bobbin
Grasp	2	∩		∩	2	Grasp
Full bobbin from bin to spindle	3	⌀		⌀	3	Bobbin from spindle to bobbin box
Position bobbin on spindle	4	9		⌀	4	Drop bobbin into box
Creel End, Tie Knot, Start End	B				B	
Reach for end on cone	1	∪		∪	1	Reach for end on full bobbin
Select for end on cone	2	→		→	2	Select end on bobbin
Grasp end on cone	3	∩		∩	3	Grasp end on full bobbin
Hold cone	4	∩		∩	4	Take end from bobbin to

Name	Symbol	Name	Symbol
Assemble	#	Select	→
Use	∪	Grasp	∩
Inspect	O	Transport loaded	⌀
Disassemble	⋔	Position	9
Release	⌀	Avoidable Delay	⌙
Transport empty	∪	Rest	⌇
Pre-position	⌂	Plan	⌀
Unavoidable Delay	⌒	Hold	∩

Fig. 2. In repetitive work "therbligs" are used to study work of each hand and to balance motions. The 16 symbols shown are the most frequently used.

PRINCIPLES OF MOTION ECONOMY

USE OF THE HUMAN BODY

1. The two hands should begin as well as complete their therbligs at the same instant.
2. The two hands should not be idle at the same instant except during rest periods.
3. Motions of the arms should be in opposite and symmetrical directions, instead of in the same direction, and should be made simultaneously.
4. Hand motions should be confined to the lowest classification with which it is possible to perform the work satisfactorily.
5. Momentum should be employed to assist the worker wherever possible, and it should be reduced to a minimum if it must be overcome by muscular effort.
6. Continuous curved motions are preferable to straight-line motions involving sudden and sharp changes in direction.
7. Ballistic movements are faster, easier, and more accurate than restricted (fixation) or "controlled" movements.
8. Rhythm is essential to the smooth and automatic performance of an operation and the work should be arranged to permit easy and natural rhythm wherever possible.

ARRANGEMENT OF THE WORK PLACE

9. Definite and fixed stations should be provided for all tools and materials.
10. Tools, materials, and controls should be located around the work place and as close in front of the worker as possible
11. Gravity feed bins and containers should be used to deliver the material as close to the point of assembly or use as possible.
12. "Drop deliveries" should be used wherever possible.
13. Materials and tools should be located to permit the best sequence of therbligs.
14. Provisions should be made for adequate conditions for seeing. Good illumination is the first requirement for satisfactory visual perception.
15. The height of the work place and the chair should preferably be so arranged that alternate sitting and standing at work are easily possible.
16. A chair of the type and height to permit good posture should be provided for every worker.

DESIGN OF TOOLS AND EQUIPMENT

17. The hands should be relieved of all work that can be performed better by the feet or other parts of the body.
18. Two or more tools should be combined wherever possible.
19. Tools and materials should be prepositioned wherever possible.
20. Where each finger performs some specific movement, such as in typewriting, the load should be distributed in accordance with the inherent capacities of the fingers.
21. Handles such as those used on cranks and large screwdrivers should be designed to permit as much of the surface of the hand to come in contact with the handle as possible. This is particularly true when considerable force is exerted in using the handle. For light assembly work the screwdriver handle should be so shaped that it is smaller at the bottom than at the top.
22. Levers, crossbars, and handwheels should be located in such positions that the operator can manipulate them with the least change in body position and with the greatest mechanical advantage.

Fig. 3. A check sheet for motion economy and fatigue reduction. Not all items apply to each job.

might be compared to micromotion studies and studies of the basic elements of motion which can be seen in Fig. 3. In this figure can be seen part of a study of cone winding on Foster machines. Underneath are listed the more common symbols which are used for standard motions and which commonly are termed therbligs. Therbligs derive their name from a reverse spelling of the surname of the famous time- and motion-study engineer who invented them—Frank B. Gilbreth.

As shown in the illustration, therbligs are useful in charting right- and left-hand operations. At the end of the study, the therbligs generally are summarized to see how many times the various elements are used. An effort usually is made to eliminate as many "holding" operations as possible, since it is conceded that the human hand is a very poor holding device. Generally, some gadget can be devised to do holding and thus can increase an operator's productivity. "Transport empty" is another basic motion which often can be eliminated to a large extent as a result of such a study.

In addition to the items already mentioned, Mr. Mogensen's program of work simplification also includes a large number of related subjects such as employee training in which films are used, fatigue elimination by studies to keep motion to the simplest possible element, the use of instruction cards, the development of plant layouts for better operation, and product improvement.

In Fig. 4 can be seen a checklist of principles of motion economy used in textile mills which can profitably be applied to production-department or even office work. Motion economy is also a part of the work-simplification program. Although all of the principles listed do not apply to every operation, they do form a basis for improving efficiency and relieving fatigue in manual work.

Studies of fatigue and studies of working areas are closely related in a work-simplification program. Both should be kept to a minimum, and can be, by keeping necessary motions to the lowest possible class.

The simplest work movements, involving the use of fingers only, are called motions of the *first class*. Other classified motions are: fingers and wrist, *second class;* forearm, fingers, and wrist, *third class;* upper arm plus the three named, *fourth class;* body movement, plus all the foregoing, *fifth class*. Motions of the higher classes involve less accuracy and need more time, in addition to being more fatiguing.

Fig. 4. Allan H. Mogensen says, "We must learn to work more effectively if we are to avoid the predicament in which many persons find themselves today—too busy to be efficient. Few people understand the difference between work done at high speed by eliminating unnecessary parts of the job and work done in a hurry, by speeding up all parts of the job, both necessary and unnecessary."

ONE BEST WAY. After the one best way to do a job has been determined, a written record is made. This record is particularly valuable in teaching new employees. It prevents their learning wrong habits, which are particularly difficult to correct. It also permits rates to be determined with a minimum of danger that they will be unfair.

Rates can be set up for a standard job with the understanding that any change in work from the standard will require a new rate. Thus, employees are not penalized by added duties; and, usually, savings made on a job are passed in part to the employees, in addition to a reward to the person responsible for the saving.

Work simplification in a very condensed form has been introduced into thousands of American industrial plants through the Job Methods Training course of Training Within Industry sponsored by the War Manpower Commission. The JMT course was developed principally by Clifton H. Cox, who studied work simplification under Mr. Mogensen. The 10-hr. JMT course can serve as quick stimulation; but, it has been found, best results require a continuing program.

Eliminating Variations in WORSTED YARN COUNTS

HIGHLIGHTS: Stop Motions Can Reduce Yarn Variations—Top Standards May Be Improved—Yarn Variations of 10% Will Create Bars.

By F. CLEYN

HOW MANY TIMES have yarn variations resulted in an otherwise perfect piece of worsted being classified as a second? How many times have barry pieces shown up, caused by yarn variations?

These are questions frequently heard in a worsted mill, and should be given serious consideration. If yarn variations could be eliminated, and it is highly possible that many could be reduced or eliminated, weaving on two and three shuttles would no longer be a necessity.

TESTS SHOW VARIATIONS. A test that the writer has made on fancy piece dyes shows that variations in yarn counts exceeding 10% will appear as bars in certain shades and designs of cloth woven on two shuttles. In some highly decorated fabrics and in very dark shades, yarn-count variations of 20% are not apparent in the finished piece, although they are invariably the cause of broken picks in the weaving.

With normal twist and speed in spinning, count variations exceeding 5% will cause breakage on the frames. In the case of a limit spin, this variation might even be the determining factor between a good or a bad spin.

Spinners experiencing this trouble will naturally check the yard-per-yard evenness of the top. I personally have found wide variations in the same lot. Also these same variations exist from one comber to the other. At this point, I cannot help thinking that there is something wrong with the top standards in our industry. If uniformity of count is to be expected from the spinning frames, it is obvious that evenness of sliver in the top is essential. A spinner should not be expected to give extra operations in his processing to correct a fault in the top which he is purchasing.

The comber accepts a certain responsibility regarding neps, quality, length, moisture, and oil content, but takes a completely detached attitude when evenness of sliver is mentioned.

Most spinning plants expect to give the same number of drawing operations to any definite type of yarn. It is impossible, under these conditions, to expect the same results from an even and an uneven top. Under prevailing circumstances, where combers do not accept the responsibility which is rightfully theirs, there is only one safe procedure to follow to avoid count variations in yarn. Plan the number of operations and weighings to cope with the worst possible top in yard-per-yard evenness.

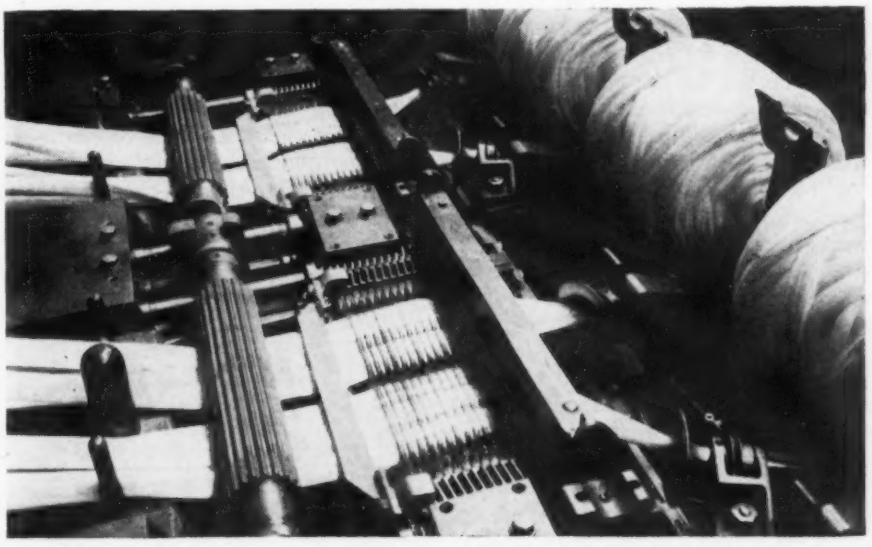
STOP MOTIONS. Use of electrical stop motions on gill boxes is common practice in many mills. Because of such use there is no reason why spinners should accept combing lots containing balls that have ends missing. In this connection, it is noteworthy that all spinners who do not have their own combing plant are at a marked disadvantage, unless standards which the combing industry is prepared to respect are established.

The present method of basing evaluation on the possibility of errors and carelessness in the combing seems to involve a tremendous waste of effort which could be used to greater advantage in the improvement of workmanship in the operation of spinning.

Considering yarn variation as it exists today, a double weighing is unavoidable. Where balling-head gill boxes are the first operations in drawing this seems to be the ideal place to make the first weighing. If stop motions are used, the chances of error are slight because there is no bobbin or can tare to be considered. If stop motions are not used, the whole weighing process becomes arbitrary, because top balls containing a heavier sliver might be classified as light because of the missing ends.

It is advantageous, in ordering tops, to specify a fairly light sliver, making seven or eight doublings possible in the first operation. Again, common practice seems to be in error, because it would seem illogical that a sliver should be first reduced by the comber only to be built up again by the spinner.

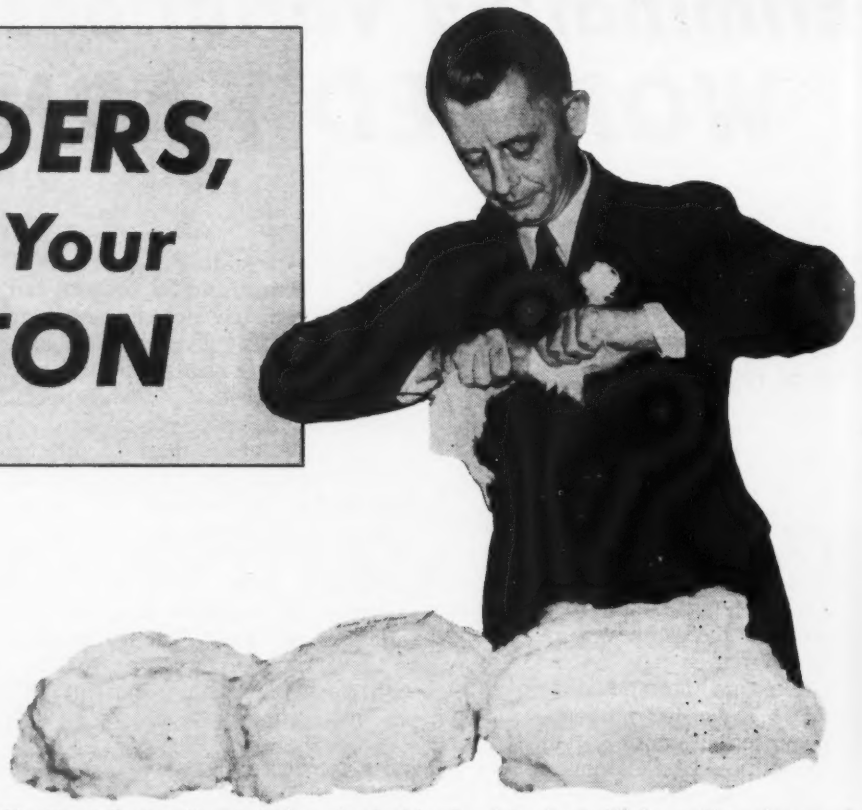
The second weighing usually is done after the third drawing operation. It is of the utmost importance that the operator who does this weighing should clearly understand the purpose of the operation and the dire consequences which can result from carelessness. Operators on this job often attempt short cuts, such as running a few yards on the bobbin before setting the knock-off, changing the knock-off gear without knowledge of the resultant weight, and many other tricks.



Application of stop motions to many of the worsted processes will go far toward reducing yarn-count variation.

CARDERS, Check Your COTTON

By E. H. HELLIWELL



HIGHLIGHTS: Cotton Character Can be Evaluated Quickly—Supplements Fiber Technicians' Work—Deficient Bales Can Be Distributed Through Mix—Only 85% of Neps Can Be Removed By Card.

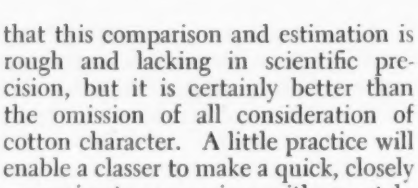
The "body" of cotton is being checked by hand by R. A. Hicks, cotton classer of the Winnsboro Mills, U. S. Rubber Co.

ESTIMATION OF COTTON CHARACTER in many mills is almost entirely ignored, although staple length, leaf, color, and preparation are carefully noted and recorded. In the smaller mills, the boss carder generally does his own classing; and while he may have an instinctive, uncertain knowledge concerning cotton character, he has no definite plan or method for the detection or evaluation of these character factors. In the larger mills the cotton classer, in filling out his classification sheets, often finds no entry required for character properties; and unless the samples being examined show glaring deficiencies, no notation is made concerning any character qualities.

For a concrete example of the actual application of a classer's check on character properties, suppose a mill, after laboratory and processing tests, selects cotton type ABCD of a certain growth as suitable for its requirements on a stated range of yarn numbers and large samples of this original type are retained in the classing room. While the laboratory can make but an occasional check on subsequent bales delivered against this type, the cotton classer can, in his routine classing, check every bale received and compare it for character qualities with the original type samples. It may be true that this comparison and estimation is rough and lacking in scientific precision, but it is certainly better than the omission of all consideration of cotton character. A little practice will enable a classer to make a quick, closely approximate comparison with an established type.

It may not be feasible to reject bales because they do not come up to type for character; but it is possible, practical, and profitable to list and select bales so that all deficient bales are used up in such a way that only a small number of these bales are put into each mix.

When a mill is not using a selected type, the same method of comparison can be employed by using any sample of known good character.



Neppiness can be determined by a relatively simple count of a given sample area from a card.

COTTON CHARACTER. Cotton character can be defined as all qualities not included in the description of grade and classified length of cotton fibers.

There are no official standards for cotton character. Variations in the character factors have an important effect on the quality of the finished yarn. Cotton of a certain grade and staple length may produce a satisfactory yarn while at other times cotton of similar grade and length will produce a yarn unsatisfactory in one or more respects. The cause of the failure cannot be attributed to variations in grade or length, because both of these factors equal the established standards for these properties.

These variations in yarn quality can, in most cases, be traced to a difference in cotton "character." There are many of these character factors, and many laboratory instruments have been devised for their detection and measurement. The use of these instruments has furnished valuable research information on cotton character, and this has been the means of improving the quality of many strains and varieties of cotton.

The modern progressive mill will have one or more of these character-determining devices in its technical laboratory. New types, new varieties, and new seasons' growth of cotton

should be tested, their character factors determined, and the probable effect of these factors on the quality of the finished goods considered.

Unfortunately, the time required for a complete cotton-character analysis prevents its application to the examination and classing of cotton in routine operation where a large number of bales are used. The cotton classer will have to be satisfied with a character determination less precise than that obtained in the laboratory. His rapid approximation of cotton-character qualities, if properly made, can be very valuable in evaluating some of the more important character qualities. A list of these with a brief description will aid in detection and evaluation.

BODY. "Body" is best described as the tendency of the fibers to cling together. This is shown by the "drag" or resistance to "break" and the feel of the staple in the hands. There are three general classifications of body: hard, medium, and soft. Hard-bodied cotton is often called strong cotton, while soft-bodied is defined as weak cotton. These designations indicate a false idea of the relative spinning utility of so-called hard and soft cottons. The hard cotton may make a stronger coarse yarn, while the soft cotton will probably make a stronger fine yarn.

There are many contributing factors to this composite property of body. Laboratory methods can determine fiber fineness, maturity, spirality, and fiber-wall thickness, while such other fiber-body properties as elasticity, pliability, temper, and frictional contact cannot be accurately measured.

Approximate judgment of fiber body can best be obtained by selecting an amount of representative staple that can be conveniently held in the hands. Grasp this sample firmly in both hands with finger tips of each hand near the center of specimen, and then press the cotton against the palms of hands. The specimen is broken near the center by spreading hands apart and using pressure against the joints of second and third fingers of each hand as leverage points.

The relative force required to break a sample can be gaged as compared with breaks of other normal samples. The intwining of fibers and their cling after the break is made should be noted. This persistent cling is a desirable fiber quality, and it will often compensate for the hard body lacking in medium and soft cottons.

Official government standards for staple length are all carefully selected by experts from normal cotton of the specified lengths and possess all the character qualities of normal cotton. These will furnish a ready basis for character factors, if no other cotton of known quality is available.

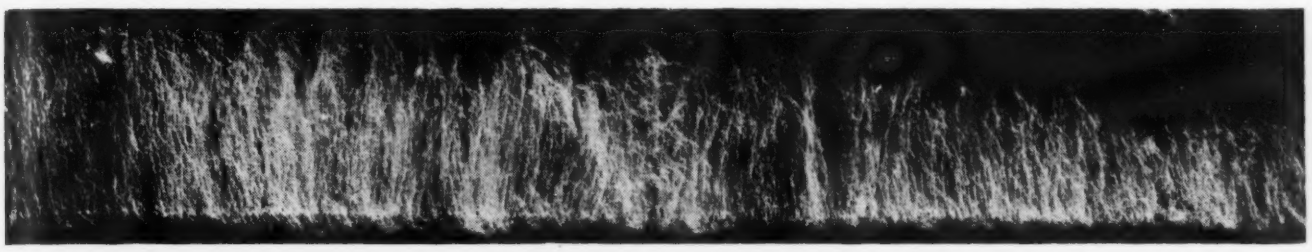


Photo shows how uniformity of fiber length can be found by pulling a sample. Such an array can be made by hand as a quick test when there is not time, or need, for more precise evaluation.

There are currently two schools of thought and practice among mill men regarding the importance of fiber strength. One group claims, and their results from Chandler bundle tests and yarn-skein strength tests seem to prove, that if the fiber strength is maintained, there is no falling off in yarn strength. The second group claims, and their tests from fiber-array diagrams and skein breaks appear to confirm, that fiber strength is secondary and that if mean fiber length is maintained, then uniform yarn strength is assured.

It is difficult to reconcile either of these broad claims to all the factors affecting yarn strength and to ignore entirely the importance of fiber fineness in its effect on yarn strength. It should be noted that in testing for fiber strength with either the Chandler or Pressley method, all the fibers in the specimen are broken in indicating fiber strength, while in yarn-skein breaks comparatively few fibers are broken and it is fiber slippage and not fiber breakage that determines yarn strength.

The high tensile strength of cotton fiber (65,000 to 85,000 lb. per sq. in.) shown by Chandler tests indicates that but a very small part of the potential fiber strength is utilized in making yarn.

Three classifications — namely, strong, normal, and weak—will cover in a practical manner the range of variation in fiber strength of samples. Past experiences with the appraisal of fiber strength will prove that yarn made from normal cotton will not show any loss of strength that can be traced to fiber weakness.

Cotton classed as "perished" staple, due to mildew, gincut, or other causes, should not be considered suitable for any use except in waste products.

ESTABLISHING STRENGTH. The first step in establishing a conception of normal fiber strength is to obtain a sample of approved normal cotton. The same sample from government length standards previously described and used in determining body may again be used. The small specimen drawn and prepared for staple measurement is suitable for testing fiber strength. One end of the specimen is held between left thumb and first finger. A thin layer of parallel fibers, free from all tangled and matted fiber, on the other end of the specimen is grasped between the right thumb and first finger and drawn from the body of the specimen. The balance of the specimen is discarded and the other end or layer of fibers which is held in the right hand is grasped firmly between the left thumb and first finger. Using the joints of the second and third fingers of each hand as leverage points, a straight, steady pull is used.

A steady pull is preferred to a quick snap, as it permits a more precise gaging of the force required to break the fibers, reduces the slippage of fibers between the fingers, and allows an appraisal of the elasticity of fibers before the break occurs. After the fibers rupture, the broken sections held in each hand should be overlapped end to end and broken again. This permits a second judgment of fibers that were easily broken on the first pull and is a check on the first judgment of the fiber strength.

A little practice will enable a classer

(*Continued on page 129*)

WARTIME IDEAS Studied for PEACETIME TEXTILE MACHINERY

HIGHLIGHTS: Magnesium Light, but Lacks Stiffness, Tensile Strength, and Low Cost of Steel—Plastics Require Expensive Molds and Are Not Always Serviceable—Electronics Hampered by Inductance—Plywood Successful—Rubber Pickers Show Promise.

By ALBERT PALMER*
Vice President and Director of Engineering
Crompton & Knowles Loom Works

IN DISCUSSIONS of postwar planning, the peacetime use of the wartime developments of science and industry is stressed. New ideas and products are and will be available, but they cannot be put into use as readily as the average postwar planner would lead us to believe.

Every new idea that is proposed for textile machinery must be studied to show that its use is practical and feasible from the engineering standpoint. Its effect on the price of the machine must be determined. Its justification in the light of the price must be proved.

There are two general methods of approach. One is to hunt at random for new ideas, with the hope of running across something that might be used. The other is to define problems that exist, list the possible solutions, determine the most promising solutions, and concentrate on them until the answer is found.

MAGNESIUM. A good illustration of random hunting is the search for new materials that might have a place in the construction of a loom. One of the most frequently mentioned is magnesium. Its principal advantage is lightness. It is about 66% as heavy as aluminum and 24% as heavy as iron or steel. It can be cast, extruded, forged, and pressed into almost any shape that is wanted.

There are certain offsetting disadvantages of magnesium. Its modulus of elasticity is only 22% that of steel. For this reason a magnesium bar, for instance, to have the same stiffness as a steel bar, must have a much larger cross-section. The magnesium bar might be half as heavy, but extruded magnesium costs from 12 to 15 times as much per pound as cold-drawn steel.

The tensile strength of magnesium is only one-quarter to one-third that of steel. Inasmuch as the weight ratio is in approximately the same proportion, the weight of a magnesium part would be practically the same as the weight of a steel part to have the same tensile strength.

As a substitute for cast iron, magnesium is more promising. Although it has only one-half the tensile yield strength of cast iron, it is so much better in shock resistance that it probably can be used in many places to reduce the weight of a given part to one-half or one-third its weight in cast iron. The chief question to be settled, aside from other physical considerations, is whether the cost is justified. Magnesium castings at present, on a pound basis, cost anywhere from 10 to 20 times as much as gray iron castings.

Where magnesium is considered for the replacement of wooden parts, hollow extruded sections are possible. If a wooden handrail is involved, the only way in which to save weight with magnesium would be to increase the external dimensions of the part and reduce the wall thickness. Here again, are a small reduction in weight and an increase in cost justified?

Where a large amount of machining must be done, the use of magnesium results in a saving. This advantage, however, is offset by other problems. If holes are to be tapped in magnesium for screw threads, the length of the thread must be at least twice the length of the thread in a similar cast-iron part. Magnesium is relatively soft and must be protected against wear by steel coverings, inserts, or liners. Similarly, it must be protected against galvanic corrosion when it comes in contact with other metals. Allowance must be made for expansion and contraction under varying conditions of temperature. In the fabrication of textiles it is undesirable for certain parts because it will smudge the fabric.

Magnesium undoubtedly can be used to some extent in textile machinery. Perhaps its suppliers will reduce the cost of the material.

PLASTICS. A short time ago a member of our organization had an idea that, because valve wheels for battleships are made of plastics, we might adopt the same material for handwheels on looms. At the outset we were told that we must spend $3,500 for a mold. Then we were, after much figuring, offered the handwheel at a price which was about 50% more than the cost of the pressed-steel wheel that we are using. There was some saving in weight but there was a grave question concerning the serviceability of the plastic product. Eventually the problem was solved by making the handwheel of plywood, fitted with a cast-iron hub and a steel rim. The saving in both the weight and cost was considerable.

Another attempt was made to use plastics in the case of sheaves for loom dobbies. The lowest price that we have been quoted for a product that would give reasonable service is double the price at which we sell the wooden sheaves.

Attempts have been made to fabricate pickers of plastic materials. We worked for several years to develop one, but the material would not stand the shock load and went to pieces after a few thousand picks. The only substitute for rawhide and leather which shows promise at present is the rubber impregnated material which is being molded into pickers by a western manufacturer.

Recently another company brought out a plastic impregnated fabric sheet that one of our engineers thought might be used for a dust cover to protect the harness pulldown motion. The bare cost of the material was more than the completely fabricated part made of sheet steel.

The chief drawback of plastics, aside from their physical characteristics, is the high die or mold cost. On textile machinery, in many cases, the cost of the dies and molds is not justified by the relatively small quantity of parts used.

* *Abstract of paper before Textile Society of Canada, Montreal, Nov. 25.*

PICK MOTION. The most intriguing problem that the loom builders have tried to solve to date is the improvement of the picking motion. A review of United States patents which have been issued since 1850 shows that approximately 1,400 have been granted on this mechanism alone.

A recent attempt on the part of an engineer and a professor of electrical engineering to make an electric picking motion illustrates the point. They devised a shuttle with a metal fin on the bottom. This projects toward the fell of the cloth and passes between poles of electromagnets in the shuttle boxes. The electromagnets are wound like the field of an induction motor; in fact, the arrangement is not unlike an induction motor cut and rolled out flat so that the magnetic field, instead of rotating around the axis of the motor shaft, continually moves laterally from the outside of the shuttle boxes toward the center of the loom. The traveling magnetic field induces a back electromotive force in the fin which, acting as the rotor of the induction motor, gives motion to the shuttle.

The loom operates very quietly and nicely at about one-half the speed of the conventional loom, but has several limitations. The windings of the flat motors correspond to those of an induction motor which is larger than the motor generally used to drive the whole loom. They would make the cost of power appreciable. The equipment would cost several times as much as the conventional. Furthermore, it would introduce difficulties when applied to box looms and to automatic looms of all types.

C & K STUDIES. With the information which we have accumulated, we are in a position to investigate the various ways in which a shuttle may be propelled. We are completely equipped with high-speed cameras and all the electrical equipment that goes with them—all designed and built by us, with the advice of Prof. H. E. Edgerton, of Massachusetts Institute of Technology, and other qualified engineers. So far we have discussed the problem with experts in electric, hydraulic, pneumatic, and mechanical equipment. Frankly, we have not determined yet which general method offers the most promise.

From the electrical standpoint, the inherent time lag in building up a magnetic field of sufficient intensity and the short time that is available for doing so virtually eliminate that solution.

Recently, a director of engineering of a manufacturer specializing in drives for machine tools expressed the thought that hydraulic principles might be applied to a loom, but stated that in his opinion the cost of the necessary equipment would make it prohibitive, and that it would offer no better operating results than now are obtained. Another company, which went to the trouble of designing an hydraulic picking mechanism, quoted a price of around $600 for the parts; but we sell the whole machine complete with its present picking motion for about $900.

Perhaps we shall fail in solving the picking problem, as others have. However, we do not believe that we shall entirely, because by an organized, logical approach we cannot fail to realize something that will be an improvement.

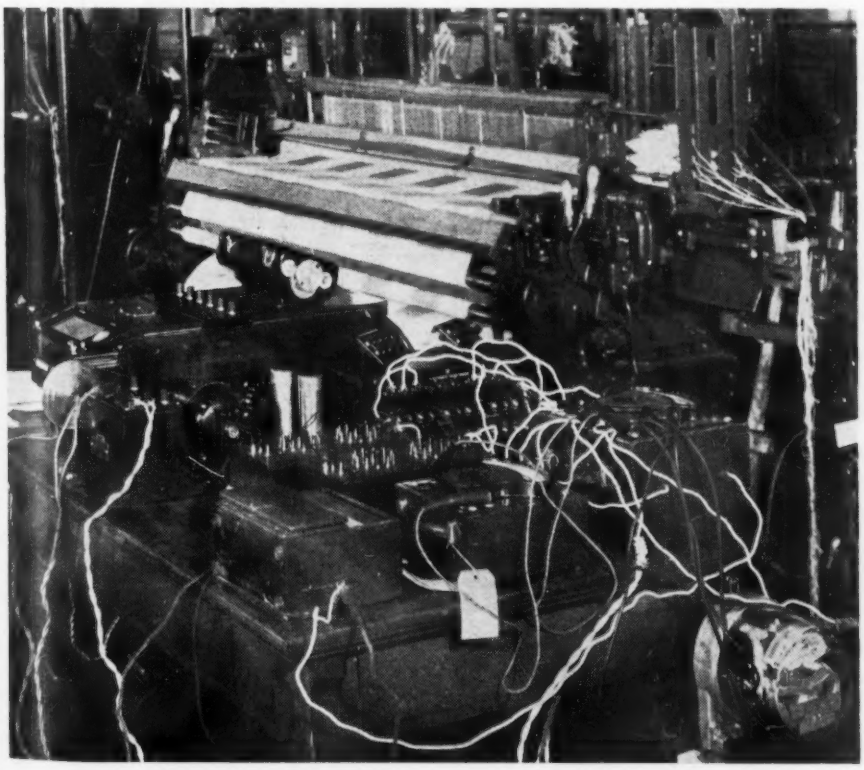
MOTORS AND DRIVES. A considerable amount of progress has been made in the improvement of other loom mechanisms.

As the result of electrical analyses, the motor manufacturers and the loom builders have been studying the flywheel effect and electrical slip in motors in relation to the flywheel effect of the moving parts of looms. We have dismantled our looms, have measured the flywheel effect of the moving parts, and have determined other important data, such as the weight of these parts, their center of mass, and their radius of gyration about some fixed center. We also have determined the velocity of the parts during the complete operating cycle of the loom.

From these data we not only have been able to determine the required capacity of motors and clutches, but also the amount of energy that must be dissipated by brakes and stop motions. Already these facts have been utilized. Postwar loom drives and motors will be better than those that are in use.

ELECTRONICS. Much has been said about the possibilities of devices that employ electronic tubes, particularly those that include the phototube. Electronic relays now are available that are fast enough to be used on stop motions and filling detectors; but still they are not applicable in all cases, not because of any fault in them, but because of the inherent characteristics of the electrical apparatus with which they are used. At the moment inductance causes electrical circuits to be too slow for some of the operations which now are performed mechanically.

Gradually the difficulties which hamper the use of new devices and materials in textile machinery will be overcome by changes in them and in the machines to which they are applied. They will not be available to the mills just as soon as hostilities cease.



Momentary power-demands of a loom and its mechanisms are examined through the operating cycle by recording oscillograph.

REPELLENT FINISHES
Need Time for Penetration

HIGHLIGHTS: Three Methods of Application Possible—Properly Prepared Cloth Necessary for Efficient Result—Different-Weight Fabrics Require Different-Type Padding Arrangement—Air Drying Preferred to Other Methods.

By **RAYMOND A. PINGREE,**
Chemical Director
Warwick Chemical Co.

This is the first of two articles by Mr. Pingree. In his second article, the author will deal with the chemical nature of the better known and more widely-applied water repellents of a durable character. He will further discuss the proper methods of applying these finishes in order to secure the most satisfactory results. Both articles of the series deal with those water repellents applied to fabrics designed for wearing apparel, household use, and the like. These articles are most timely, since millions of yards of government fabrics have been so treated. They have resulted in improved types of repellent formulations and point the way to higher efficiency in postwar applications.

THE USE OF enormous quantities of water-repellent fabrics by our armed forces has made the processing of such fabrics a major factor in the textile finishing industry. Many problems have been presented to the textile chemist and finisher in the treatment of these fabrics, and a considerable amount of research and development work has been undertaken in efforts to solve them.

The purpose of this article is not to review the modern test methods, nor to discuss the merits of the newer water-repellent compounds, but to outline what is considered by the author to be the best present practice of applying compounds to textiles and to point out certain bad practices which he has witnessed. The opinions were arrived at through constant contact with the problem for the past several years and in most cases represent a concensus of many textile finishers and chemists.

Water-repellent finishes may be divided into two general classes, the so-called "durable" type and the "non-durable" type. "Durable" finishes include those which will withstand several launderings and dry cleanings without adversely affecting the water-repellent properties of the fabric to any great extent. "Non-durable" finishes are those which will not withstand such treatment. Owing to the widely different characteristics of the compounds involved and the differences in methods of application, these two types of finishes will be discussed separately.

NATURE OF NON-DURABLE TYPE. This class of water-repellent compounds comprises those which owe their effectiveness to the deposition on and in the fabric of a water impervious film of waxes and polyvalent metal salts or oxides. There are three methods in general use for applying these compounds. The age-old two-step process is still in limited use. By this process the fabric is first treated with a water-soluble soap or a soap-wax emulsion, dried, and then after-treated with a polyvalent metal salt such as aluminum, lead, zirconium, or rare-earth acetates. A film of metallic soap is thus produced on and within the fabric, and excellent repellency may be obtained.

There are two single-step methods in common use with which excellent effects are being obtained. In the so-called "two-component" method, the water-repellent compound is supplied in two parts which are combined just before use. One component is usually aqueous dispersion of water-soluble soap and wax: while the other is a solution of an aluminum, zirconium, or rare-earth salt containing a protective colloid. Just before use, the two compounds are diluted and mixed, whereby they form a finely dispersed metallic soap-wax-water system. The film deposited from this process is essentially identical with that produced by the two-step method.

This article will be confined to the third and by far the most generally used method which utilizes an emulsion system in which the internal phase is a wax or mixture of waxes, and the continuous phase is an aqueous solution of a polyvalent metal salt. The wax may be a common, crystalline-paraffin wax, or an amorphous or micro-crystalline wax, or mixture of the two. Vegetable waxes and certain synthetic waxes have also been used. The polyvalent metal salt may be the normal or basic acetates or formates of aluminum, zirconium, or the rare-earth metals. A concentrated emulsion, containing from 30% to 50% of total active material, is usually supplied by the manufacturer; and it is only necessary to dilute with water before application to the fabric.

These wax-salt emulsions, supplied by various manufacturers, vary quite considerably in composition and effectiveness. They resemble each other, however, in their general properties. The acidity of the acetates and formates which are used cause the resulting emulsion to have a pH of 3.5 to 5.5. These salts hydrolyze readily and rapidly, and the emulsion equilibrium is quickly upset if the pH is raised much above 6.0. This is an extremely important point and is one which has caused much grief in many finishing plants. It is possible that the supply water may be sufficiently alkaline to cause some decomposition; or, as is more often the case, a slight amount of alkali in the goods may gradually raise the pH of the bath above the danger point. For these reasons the use of a small amount of acetic acid in the bath is considered a good precautionary measure.

These emulsions possess substantivity in varying degrees and may be exhausted onto the fabric to some extent in the same manner that dyestuffs are exhausted. This property is particularly useful in their application to woolen and worsted fabrics, with which the process may be handled successfully in the washer directly after dyeing. For this purpose, the water-repellent compound is usually diluted with hot water and then added directly to the washer in three or four portions. The goods are allowed to run for 20 to

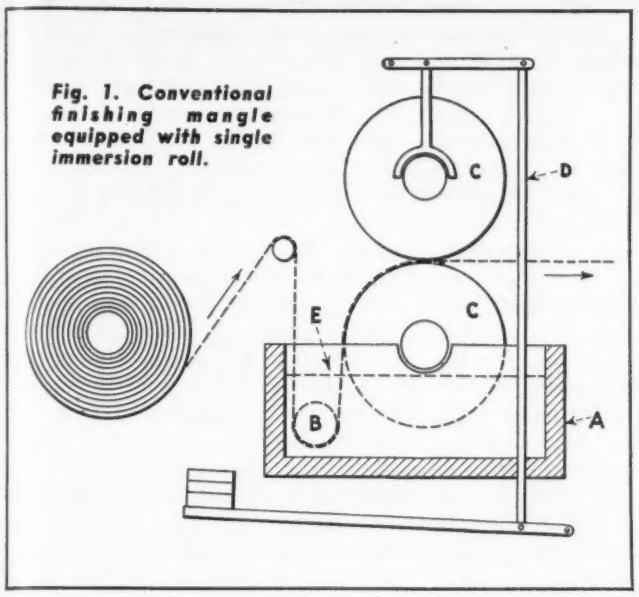


Fig. 1. Conventional finishing mangle equipped with single immersion roll.

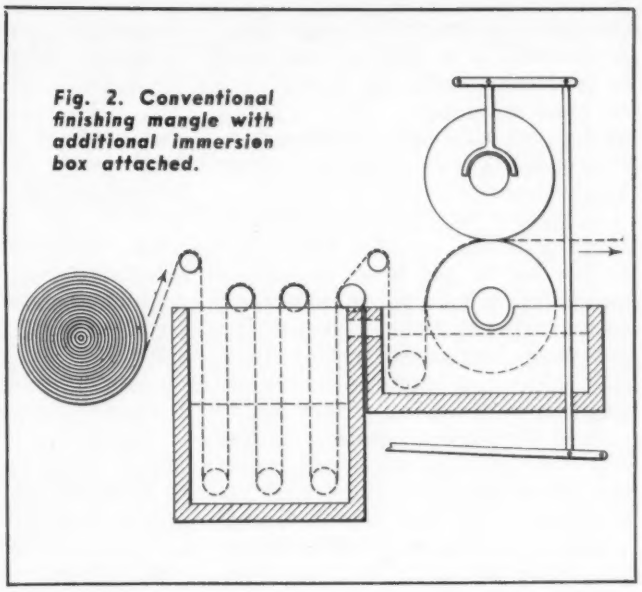


Fig. 2. Conventional finishing mangle with additional immersion box attached.

40 min. or until the bath is water-clear. They are then extracted, dried, and finished in the usual manner. In the treatment of cotton or rayon piece goods, the emulsion is best applied on a padder. The cloth is then dried and finished in the normal manner. The effectiveness of this treatment depends on the formation of a continuous, water-impervious film about the individual fibers or yarns. This film formation is dependent to a great extent upon the condition of the treating bath and the degree of wetting of the fabric during treatment. The treating bath should be in proper condition if the manufacturer's instructions have been adhered to in its preparation. The degree of wetting of the fabric will be influenced by the condition of the fabric before impregnation and by the efficiency of the padder unit.

IMPREGNATION CONDITIONS. The padding emulsion is usually prepared simply by drawing the required volume of water into the supply tub, acidifying with a small amount of acetic acid, heating to 120°F.-180° F., adding the water-repellent compound, and stirring until it is uniformly dispersed throughout the bath. It is sometimes found advisable to add a penetrant, such as n-butanol, to the bath.

The supply tub should preferably be made from a corrosion-resistant alloy such as 18-8 stainless steel or monel metal. Wooden tubs are being successfully used, but there is always the danger of disturbing the equilibrium of the emulsion system by the leaching of alkali which has been absorbed by the wood from previous finishing mixtures. Plain steel tubs have also been used, but the acidity of these emulsions causes considerable corrosion and also promotes rusting.

A perfectly clean, uniformly absorbent, alkali-free fabric should present an ideal condition for water-repellent treatment. Unfortunately, it is seldom possible in plant practice to meet all of these requirements. The economics involved in processing a certain fabric may preclude the possibility of obtaining proper absorbency. Certain types of dyestuffs, such as naphthols and sulfurs, particularly in dark shades, decrease the absorptive properties of a fabric tremendously. These two factors we must contend with, but to a large extent it is possible to neutralize these adverse effects by proper processing technique. There is no excuse, however, for attempting to treat fabrics containing traces of alkali carried over from the soaping or after-treating bath; as these may be very easily removed by the inexpensive precautions of thorough rinsing and acidifying.

The padding operation, more than any other single processing factor, determines the effectiveness of the treatment; and considerable thought should be given to this part of the process. Proper padding technique can effectively neutralize the adverse effects which normally result from poor or uneven absorbency of the fabric. There is no better illustration of false economy than the refusal to spend a small amount of money to adapt a padder for the proper application of this type of finish. This is not a fabric-surface finish, although at first thought it may seem to be; and successful application is not a matter of piling the emulsion on to the surface of the fabric. Neither is it a finish which will migrate into the fabric after the padding operation as will a sulfated oil or a dyestuff. The active materials in these emulsions stay where they are put; and, in order to obtain maximum protection, they must be distributed uniformly and completely on and into the fabric. To attain this end, every yarn and every fiber must be completely and uniformly wetted with the emulsion in the padding process. On heavy fabrics or on fabrics possessing poor absorptive properties, this is impossible to do without proper equipment.

IMPREGNATION EQUIPMENT. The conventional finishing mangle is illustrated in Fig. 1. It consists, essentially, of a wooden box A which may or may not be lined with a corrosion-resisting alloy and which has a working capacity, usually, of about forty gallons; an immersion roller *B* in the entering side of the box; two squeeze rolls *C*; and a weight and lever system *D* for regulating the pressure between the rolls. The top roll is generally built of rubber; and the lower roll, which runs partly submerged in the bath, is wood or brass. Wetting and penetration of the fabric must take place between the time the cloth enters the bath and the time it passes into the nip. From the point of entrance to the nip, the cloth travels a distance of approximately 0.9 yd. If the padder is running at a speed of 60 yd. per min., then wetting and penetration must be complete in 0.9 sec. It does not take much imagination to realize that this is a practical impossibility with most fabrics, even under the most ideal conditions. Satisfactory penetration may be obtained, however, under these conditions providing the fabric is light in weight and very absorbent. On heavier and less-absorbent fabrics, this method of processing cannot be expected to function efficiently; and it is indeed false economy to reason that way. There are several ways of im-

proving penetration. In many instances the use of a penetrating agent, such as n-butanol or an alkyl aryl sulfonate in the padding bath, has been of considerable advantage. This is not a panacea for penetration troubles, however, and very often it fails to show an improvement.

Increasing the time of contact between cloth and emulsion has proved to be one of the most satisfactory means of promoting uniform and complete penetration. The simplest and most inexpensive way of doing this, without a reduction in padder speed, is to lower the padder box as near to the floor as possible. In this way, it is sometimes possible to double the distance from the point of entrance to the nip. Two other advantages are gained by this change. Owing to the fact that the lower padder roll is no longer in contact with the bath, less foam is generated. The tendency to spot from foam or surface separation is minimized by the reverse flow of liquor on the fabric. This flow serves to wash back any surface separation that might otherwise be drawn into the nip.

Many finishers have gone a step further than this and have attached an immersion box to the front side of the padder. This arrangement is illustrated in Fig. 2. The box is ordinarily the same width as the padder box and is about 2 ft. deep. It is equipped with two or three immersion rolls and is arranged to run with a depth of about 12 in. of emulsion, supplied through an overflow pipe in the padder box proper. This simple and inexpensive addition may increase the contact time between fabric and emulsion to 3.5 seconds, or almost 4 times that obtained with the conventional padder unit. Such a type of impregnating unit is being used by many finishers and is producing excellent work. The author has seen in operation several of these units that have paid for themselves many times over by reducing the amount of unsatisfactory work to a minimum, thereby eliminating to a large extent the percentage of seconds and reprocess work.

The finisher whose water-repellent finishes are applied to heavy fabrics or to material which is particularly non-absorbent is often justified in installing a three-bowl padder to handle the work properly. This might be considered the ultimate in impregnating equipment. The advantages gained from dipping the fabric a second time after passing through the first nip cannot be overemphasized. The first immersion and squeeze serves to wet the fabric out completely, while the second immersion and squeeze finishes the job by driving the emulsion into the goods. Fig. 3 shows a suitable set-up of this type. In most respects this diagram is self-explanatory. A hydraulic ram device A is shown for controlling pressure between the squeeze rolls. There are several other types of mechanism in use which are probably equally satisfactory for this purpose.

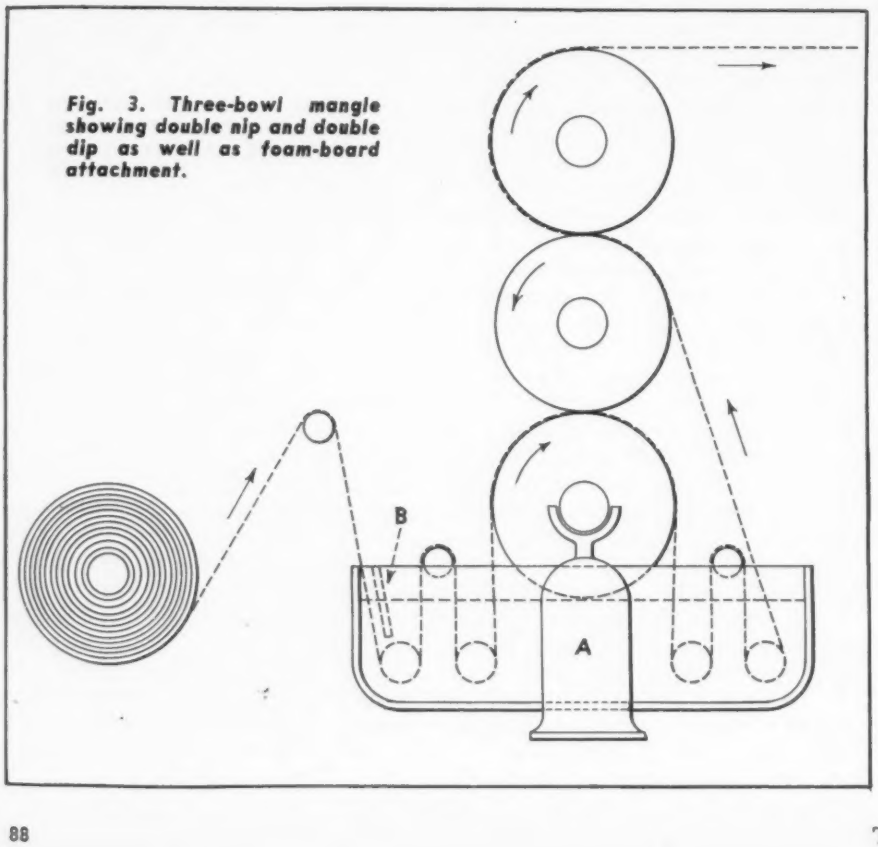


Fig. 3. Three-bowl mangle showing double nip and double dip as well as foam-board attachment.

One other point of interest in this sketch is the partition *B*. This consists simply of a board or piece of sheet metal fitted inside of the padder box, running from side to side and down into the box a sufficient distance to cut the surface of the bath. This serves to partition off and constrict the portion of the bath in which the fabric enters, and in so doing, it causes so much motion of this restricted surface that foreign material cannot collect at that point to be picked up by the goods. It is a well-recognized fact that spotting which is caused by the padding bath usually occurs at the point where the dry fabric enters the bath. Once the cloth has been wet-out, foreign material will not adhere to it as well. This is a very simple device for mimimizing spotting and can be used on any type of padding equipment.

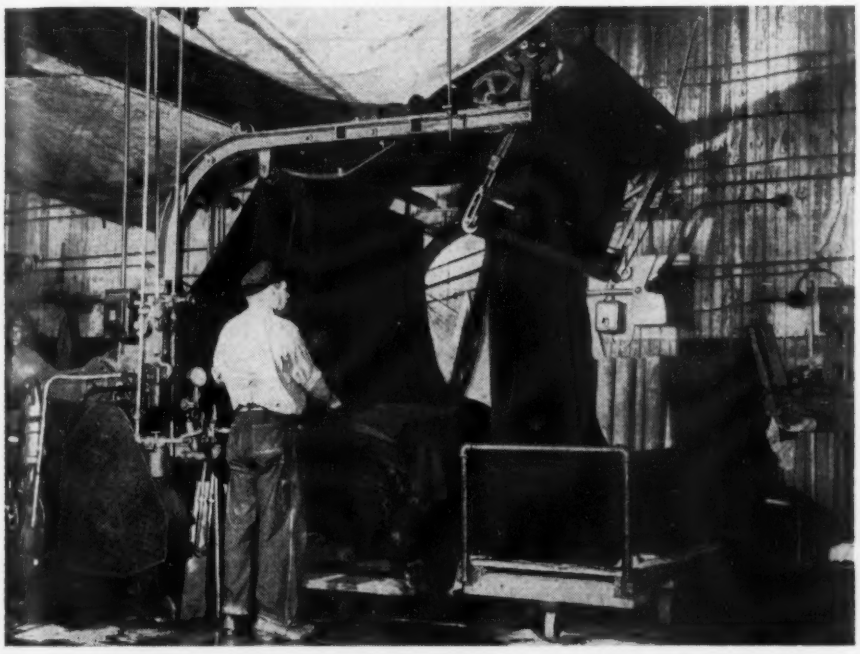
DRYING. The treated fabric may be dried in any one of several different ways. The most common practice is to dry the goods in a hot frame. A small stack of dry cans in front of the frame is quite often utilized to dry the goods partially before they enter the frame. Any type of loop dryer or other air dryer may be used for this work. Dry cans are also being used successfully, although the quality of work produced is probably not consistently as high as that produced by air drying. Drying temperatures are not particularly critical, but it is usually desirable to have the goods come off the dryer in bone-dry condition. Water-repellent films of this type are to some extent sensitive to heat, and for this reason it has been found good practice to make provisions for cooling the goods as quickly as possible after drying. If they are batched-up hot off the frame and permitted to lie around in that condition for several hours, the water-repellency will sometimes suffer badly. This will be particularly apparent deep inside of the roll, where there has been little opportunity for the heat to dissipate. A cooling-can at the end of the frame is a very effective means of overcoming this trouble. A skying arrangement at the end of the frame will also serve the purpose. If some such precaution is not taken, then every effort should be made to prevent the goods from remaining on the roll for more than an hour after drying.

Much research has been conducted by various government agencies, chemical manufacturers, and members of the finishing industry. Their achievements have been coupled with constant cooperation and interchange of ideas among them for the general good.

WOOL SHRINKAGE
Control With Resins

By J. EDWARD LYNN, SC. D.
American Cyanamid Co.

HIGHLIGHTS: All-Wool and Part-Wool Fabrics of Woven and of Knitted Construction Can Be Treated—Resins Employed Are Water-Soluble—Treatment Requires Pad Mangle, Pin Tenter, Drying Chamber, and Cure Box.



Front view of padder used for applying Lanaset at United Wool Piece Dyeing & Finishing Co., Passaic, N. J. The cloth passes through a tank containing the Lanaset, then through the spreader rolls, and the squeeze rolls.

NO METHOD IS KNOWN whereby woolen goods can be shrinkproofed—i.e., to the point where shrinkage is reduced to less than 1% in the warp and 1% in the filling after 15 to 20 launderings. Such control has not been attained, but shrinkage control is now available, by the use of Lanaset* and other resins, which eliminate practically all the felting shrinkage of wool and alleviate the sponging shrinkage.

Lanaset is a synthetic resin. Specifically, it is a condensate based on melamine, usually a methylol melamine or an alkylated methylol melamine. It has been used successfully in the wool shrinkage control of 21½-oz. all-wool sleeping-bag cloth and interlining cloth for the U. S. Army and for many mill trials. Physical properties of this resin are given in Table I.

**Lanaset is the trade mark of the American Cyanamid Co. applied to a melamine resin of its manufacture for use in wool shrinkage control.*

EQUIPMENT. The equipment required for the Lanaset treatment is quite simple and readily available in most cotton and rayon finishing plants, but very few wool finishers are adequately equipped. As shown in Fig. 1, the arrangement of equipment for optimum results is an in-line set-up of a pad mangle followed by a pin tenter which leads into a drying chamber and thence to a cure box. The final operation is carried out in a light dolly or log washer. Variations of this in-line set-up have been tried successfully in different mills.

METHODS OF APPLICATION TO PIECE GOODS. Before application of Lanaset, the wool should be substantially neutral and contain less than 0.5% oil or grease.

Impregnating solutions for the wool are made by diluting Lanaset to a content of about three-fourths of the volume of the dilution water. All water should be approximately 80° F. and never above 100° F. Since a wetting agent is extremely helpful in obtaining uniform and rapid impregnation, the requisite amount of Deceresol OT-25%, dissolved in about one-eighth of the dilution water, is then added. Finally, the requisite amount of Aerotax Accelerator No.

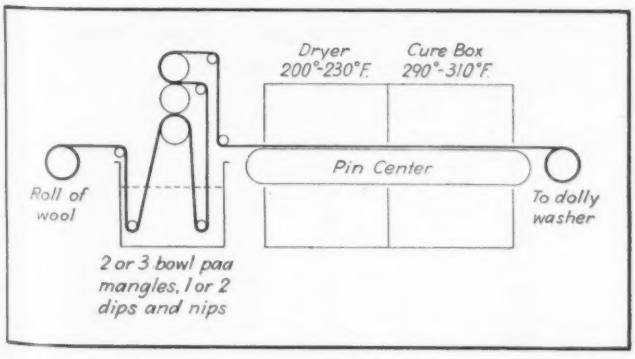


Fig. 1. A satisfactory arrangement of mill equipment for application of resin finishes is shown in diagrammatic form.

Table I
Physical Properties of Lanaset

Appearance	A Clear or hazy colorless syrup
Solubility	Cold water in all proportions
Solids content	80%
Weight	10.5 lb. per gal.
Odor	Varies from none to a weak formaldehyde
pH	7 to 8.5
Storage stability	6 mo. or longer at ordinary temperatures

187, dissolved in the remainder of the dilution water, is stirred in.

Typical bath formulas designed to leave the same amount of resin in the fabric at different wet pick-ups are given in Table II.

Solutions containing Accelerator No. 187 will not usually be stable for more than 20 hr. In order to ensure best results the accelerator should be added just prior to use. Only sufficient solution for an 8-hr. run should have this accelerator in it.

The goods should be impregnated in a pad mangle or similar equipment which has a uniform squeeze. A heavy squeeze, giving a 60% to 80% wet pick-up with two dips and nips, is preferred.

Since thorough wetting of the goods is essential, the wetting-out time of the goods should be determined. This is easily accomplished by placing small pieces (2 in. x 2 in.) of the goods on a sample of the bath and noting the time required for the piece to sink below the surface. The time noted is the minimum that the goods have to remain in the impregnating solution. Because certain dyestuffs affect the speed of wetting, each color or each check of a plaid fabric should be tested separately. It is important that the whole plaid fabric should be impregnated for a time equal to the slowest sinking time.

DRYING. After impregnating and squeezing, the goods should be put on a tenter frame and dried. Drying can be done at temperatures of 230° F. or lower. The drying speed will, of course, depend on the weight of the wool, the fabric construction, the wet pick-up, the drying temperature, and the efficiency of heat input and moisture removal of the dryer. Lanaset does not materially affect the drying time of wool. Can drying is not desirable.

For optimum results it is believed that one dryer for drying and a separate dryer for curing are desirable. However, good results have been obtained when the drying and curing have been done as a single operation if the dryer is not too full of moisture.

CURING. Lanaset should be cured at a temperature of 280° to 300° F. for good results, although temperatures as high as 400° F. for very short times (less than a minute) have been found effective. Temperatures below 280° F. require a long time and the cure may not be complete. As in drying, good air circulation and uniform application of heat are essential. Adequate ventilation to remove formaldehyde vapors is required.

The normal time element at different temperatures for curing after drying, or for drying and curing an 8-oz. women's-wear flannel are given in Table III.

Table III should be used only as a guide; each individual cloth type has its own optimum condition which can readily be found by trial.

After curing, the fabrics should be given a light but thorough wash to remove surface and uncured resin, accelerator residue, any formaldehyde that might be present, and to develop a mellow hand in the finished piece.

In order to obtain the maximum in shrinkage control the goods should be first wet out and dried without tension. After this they are processed as has been described—running with a minimum of tension. Lanaset does control the normal "relaxation shrinkage" of wool to some extent and the tenter width of the fabric can be closer to the desired final width than is customary with untreated wool. If 56 in. is the desired final width on goods which are ordinarily dried at 60 to 61 in., Lanaset treated cloth should be tenter dried at about 58 in.

RATE OF TREATMENT. The goods can be run through the padder at speeds ranging from 10 to 40 yd. per min., depending upon the speed of the wet-out of the cloth and upon the speeds of the dryer and cure box if the equipment is in-line.

EFFECT OF TEMPERATURE. It has been reported frequently that heating wool to 290° F. will cause it to deteriorate. This point was checked on two different pieces of white wool by heating for various times at 290° F. Some pieces were wet out and then

Table IV
Effect of Temperature on the Tensile Strength of Wool

Treatment	8½-Oz. Plain Weave Suiting No Nap		8-Oz. Women's-Wear Flannel	
	Warp—lb.	Filling—lb.	Warp—lb.	Filling—lb.
Wet out—heated 5 min. at 290° F.	54.9	60.3	46.3	30.3
Wet out—heated 15 min. at 290° F.	55.0	60.8	....	....
Wet out—heated 30 min. at 290° F.	53.9	61.5	46.5	30.0
Wet out—heated 45 min. at 290° F.	....	....	47.8	31.8
Wet out—heated 60 min. at 290° F.	55.3	59.0	....	....
Left dry—heated 60 min. at 290° F.	55.8	62.8	....	....
Wet out—heated 9 min. at 350° F.	....	....	45.3	34.8
Control—not heated	55.6	60.9	45.8	30.0

Table II
Formulas for Various Wet Pick-Ups

Material	Percent Pick-Up 100%	80%	60%	50%
Lanaset.....(lb.)	100.00	125.00	167.00	200.00
Accelerator No. 187.(lb.)	3.00	3.75	5.00	6.00
DeceresolOT-25%...(lb.)	2.00	2.00	2.00	2.00
Bulk to make.....(gal.)	100.00	100.00	100.00	100.00

Table III—Drying and Curing Time for 8-oz. Flannel

Temperature °F	Curing After Drying in Minutes	Drying and Curing in Minutes
230	45	90
260	15	30
280	11	14
300*	6	9
350	1	2
400	⅓	1

* *This temperature gives excellent results and is recommended.*

Table V
Shrinkage Control Obtained on Mill Trials of Lanaset

Number of Launderings Given	Shrinkages* in Percent											
	Tropical Worsted				Plain Flannel				80% Wool, 20% Cotton Army Shirting			
	Untreated		Treated		Untreated		Treated		Untreated		Treated	
	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
1	2.5	0.5	2.0	0.3	18.3	15.2	4.2	4.7	4.0	1.5	2.5	1.3
3	4.3	1.7	2.8	0.5	22.0	18.7	5.9	5.2	6.5	3.5	3.5	2.0
5	6.3	3.2	3.9	0.5	....	....	...	...	8.5	5.8	4.5	2.5
7	8.7	5.5	4.6	1.1	....	....	...	...	....	....	...	...
10	10.3	8.4	5.0	0.9	....	....	...	..	13.0	10.5	5.2	2.5

* *Samples given wool launderings at 100° F. according to Fed. Spec. CCC-T-191A.*

heated, others were heated just as they came from the rolls. Results are shown in Table IV.

The data in Table IV indicates that heating wool at 290° F. for five times as long as is necessary to cure Lanaset does not cause a loss in tensile strength.

Prolonged heating of white wool at high temperatures causes some yellowing, but this can be removed by peroxide bleaching.

CONTROL OF WOOL PROPERTIES. Examples of the shrinkage control obtained in mills by the use of Lanaset are shown in Table V. In general, wool treated with Lanaset otherwise remains unchanged. The effect of the Lanaset treatment on important properties of wool, other than shrinkage control, are shown as follows:

Crease resistance	Not changed.
Felting	Practically eliminated tendency to felt left in wool.
Hand	Slightly harshened, can be adjusted with softener.
Moisture regain	Almost no change (vapor).
Napping	Sometimes need a stronger action for same degree of napping. Napping before treating and final brushing is often effective.
Resiliency	Not changed.
Warmth	Not changed.
Color fastness and shade change of dye	Usually faster to wet treatments. Most commonly used wool dyes not adversely affected. Test should be made, however, before going into production.
Caustic resistance	Has a higher resistance to alkali than untreated wool.

Lanaset can be used to advantage on such varied types of all-wool or part-wool textiles as:

Woven Fabrics

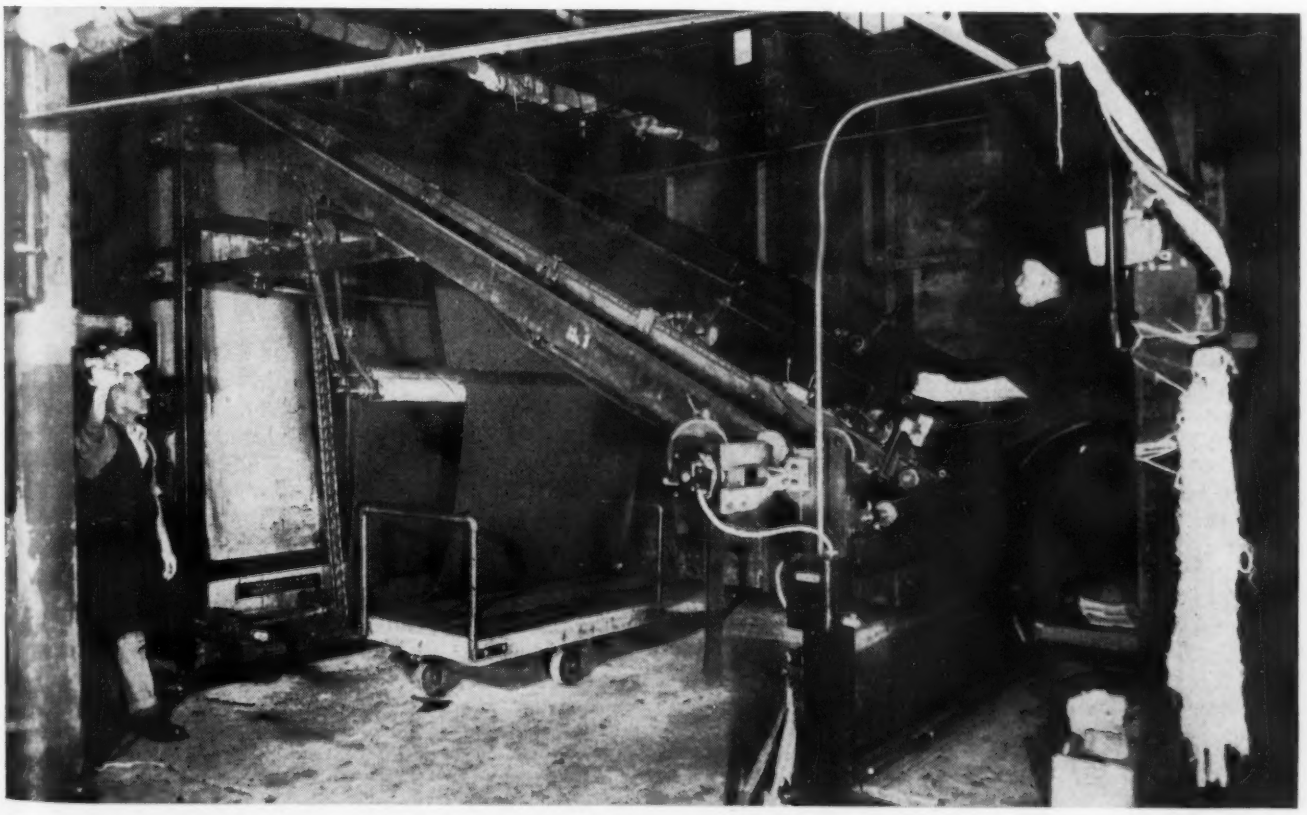
Coatings, flags, interlinings, women's dress goods, shirtings, sportswear, suitings, tropical worsteds, uniform cloths.

Knit Wear

Coatings, gloves, hosiery, robes, scarves, sportswear, sweaters, underwear.

Others

Yarns for hand knitting and mending, filter cloths, papermaker's felts, carpets, blankets, hat felts, palmer blankets.



Woolen goods run through a pin frame and then to a drying box for curing. Cured at a temperature at 280° to 300° F.

Calculating SPINNER'S TASK

HIGHLIGHTS: Time Studies the Basis for Determination—"Percentage Rating" Figure Shortens Calculation of Assignments—Handy Chart Aids Accumulation of Data—Work-Load Varies Considerably Between Mills.

By F. H. GUNTHER
and
MARCUS GROSS

IN MANY MILLS the collective duties of a spinner are categorically defined as "side spinning" with the cleaning work-load eliminated or "side spinning with the cleaning work-load included." In the former, the sides tended are numerically increased; and in the latter, materially decreased. "Spin and doff" with or without cleaning duties is another method employed.

To ascertain the work-load of a spinner requires a detailed time study, a comprehensive knowledge of spinning, and a knowledge of charting or scheduling. An analytical average is drawn from a time study and this should be made a standard for future reference. The accompanying chart is convenient for gathering time-study and other technical data.

As methods or operations vary from mill to mill and operations defined are adaptable only to an area of locality, it is not necessary to follow exactly the sample chart and the operations listed thereon. Each spinning room should have its own charts listing the operations that completely cover the work-loads. The final analysis of such a work-load is based on the question, "How many minutes does a spinner actually work on one side in the work week?" From this the entire work-load is determined.

ENDS-DOWN TEST. The determination of a spinner's task taxes the ingenuity of the spinning-room overseer. He must first obtain data concerning the average number of ends down per 1,000 spindles per hour, the elapsed running time of the creeled roving, and the percentage allowance for allotted rest. To find the average ends down per 1,000 spindles per hour, any standard procedure may be used. A typical procedure follows: Make 2- to 4-hr. tests unless there is some unusual spinning trouble encountered. For example, if ends found down in 2 hr. equal 12 (spindles per frame, 200), the average per hr. equals 6.

Frames per 1,000 spdl. = 1,000 ÷ 200 = 5

5 × 6 = 30 ends down per 1,000 spdl. per hr.

This should be accepted as the average ends down per 1,000 spdl. per hr. and incorporated as a standard for the particular yarn under study. The percentage of ends down is as follows:

30.00 ÷ 1,000 = 0.03 or 3%

Therefore, in ascertaining the spinner's task, it can be assumed that 3% of ends down per side (100 spdl.) per hr. is the starting point in determining the average ends down per side per work week. Then, for a 40-hr. week, with 100 × 0.03 = 3 ends down per hr. per side, the ends down per 40 hr. per side is 40 × 3 or 120.

If it takes an average of 20 sec. to piece an end, then it takes 120 × 20 = 2,400 sec., or 2,400 ÷ 60 = 40 min. One important fact is immediately established; viz., that the spinner spends an average of 40 min. per wk. of 40 hr. piecing up ends on one side of a 200-spdl. frame.

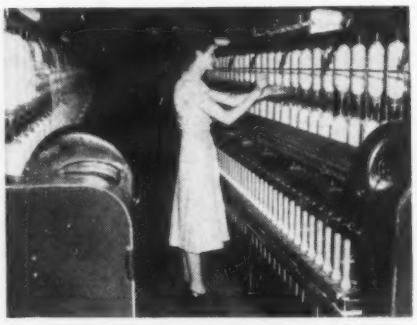
"Speed-figuring" is again employed in determining the elapsed running time of the creeled roving. This is also essential in determining the roving changes, or the putting in of roving for one side of the work week. (The pounds per spindle divided into hours per week equals a constant.) For example, pounds per spindle at 90% efficiency would be the following:

Work week 40-hr. = 40 ÷ 0.60 = 66 constant.

(This example is based on an assumed package weight of 0.60 lb.)

The constant times the pounds of roving from which the yarn is drawn equals the elapsed running time of the creeled roving.

Example: Find the elapsed running time of double roving fed from two 10-oz. bobbins (1.25 lb.).



Putting in roving can consume over 10% of a spinner's time.

Then 1.25 × 66 = 82.5, or approximately 83 hr. is the elapsed running time of roving.

Another method that can also be used is to divide pounds per spindle into pounds of roving fed and multiply by the hours in a week:

1.25 ÷ 0.60 = 2.08+ quotient in weeks.

2.08 × 40 hr. = 83.2, or 83 hr.

If there are 10% stops for doffing, cleaning, etc., the roving ceases to run for that time; thus only the elapsed running time of the creeled roving is calculated, or need be calculated. The roving is changed only when its calculated elapsed running time is used up.

For expediency, the elapsed running time in hours is converted into minutes—83 × 60 = 4,980 min. If there are 100 spindles to one side and the roving is fed double end, then there are 200 rovings to one side. Minutes for each roving change on this side can be figured as follows:

4,980 ÷ 200 = 24.9 min.

If the spinner changes roving on an average of every 24.9 min., then in 40 hr. roving changes would be 2,400 ÷ 24.9 = 96 or 96 roving changes in 40 hr.

If a time study reveals that the spinner can change roving within an average of 15 sec., then only 96 × 15 = 1,440 seconds, or 1,440 ÷ 60 = 24 min. per wk. are actually spent in changing roving on one side only.

PERCENTAGE RATING. One of the most difficult problems to solve is a workable doffing schedule that can be accurately classified under a percentage rating. Where a spinner's task involves "spin and doff," a percentage rating for doffing one side is valuable for quick reference.

If a doffer can lift 32,000 bobbins in 40 hr. at 85% efficiency (15% allotted for rest) the average of bobbins doffed per hr. is 800.

Again, assume 100 spdl. per side. The doffing interval for the yarn is 8 hr. Basically, a 1-hr. doff calls for a schedule of 8 sides to a doffer. An 8-hr. doff at 85% calls for a schedule of 64 sides to a doffer. (The 64 sides represent 100% of a doff in so far as

the doffer is concerned.) Therefore, $1.00 \div 64 = 0.0156+$, or a 1.56% "percentage rating" for one side of 100 spdl. The actual minutes involved in the work week of 40 hr. is 2,040 min. This represents 85% of 2,400 minutes (40 hr.)

In correlating the above doff layout with spinning for a combination "spin and doff" work-load, the percentage rating of one side—viz., 1.56%—multiplied by 2,040 min. will equal the average number of minutes spent in doffing one side within the work week.

SPINNER'S TASK. When all the time elements of all work occurrences on one side in one week are totaled, the total is then divided into 2,040 min. (85% of 2,400 min.) for the final determination of the "spinner's task" or the "spin and doff task," whichever it may be.

It may be argued that the doff task is already based on a 2,040-min. week and if the totals of all elements, especially the "spin and doff" task, is divided into 2,040 min. for the final determination of this task, the doff element is allowed double rest. However, if 1.56% of 2,040 min. equals 31.8 min., the 31.8 min. is the actual minutes spent doffing one side of 100 spdl. within the 40-hr. working period. The percentage allotted for rest reduces the sides per doffer, but the doffing interval remains the same. The number of sides doffed are taken care of within the 40-hr. period, but the actual working minutes do not exceed 2,040.

Suppose the doff is calculated without allotted rest in making up a spin-and-doff schedule, and the total minutes spent doffing one side of 100 spdl. is ascertained.

If the doffer lifts 32,000 bobbins at 85% efficiency, then without allotted rest the maximum bobbins doffed would be as follows:

$32{,}000 \div .85 = 37{,}647+$ bobbins

$37{,}647 \div 40$ (hr.) $= 941$ bobbins per hr.

At 100 spdl. per side, $941 \div 100 = 9.41$ sides for a 1-hr. doff interval. $9.41 \times 8 = 75.28$ sides for an 8-hr. doff interval. $1.00 \div 75.28 = 0.0133$, or 1.33% of one side. (In this case the entire problem is based on a 2,400 min. or 40-hr. schedule.) The 2,400 min. is multiplied by 1.33% to find the time spent doffing one 100-spdl. side, as follows:

$2{,}400 \times 0.0133 = 31.9$ min.

Here again the doff interval remains the same because so many minutes must be spent doffing that one side within the 40-hr. work period regardless of the total sides doffed.

DATA FOR DETERMINING SPINNER'S TASK

YARN 32 WARP Combed

OPERATIONS	Unit Time per Occurrence Min.	Total Occurrences per Side per 40 Hr.	Total Min. per 40 Hr.
Brush and clean rings	2.00	5	10.00
Pass passboard	.30	15	4.50
Clean side ring rails	.20	24	4.80
Beam, bottom creel trumpet cleaning	4.00	5	20.00
Clean middle creels	1.5	10	15.00
Clean top creels	1.00	5	5.00
Clean and pick top rolls	15.00	2	30.00
Clean and pick middle rolls	7.5	1	7.50
Clean and pick back rolls	7.5	1	7.50
Clean back under clearers	40.00	0.125	5.00
Clean and pick flat clearers	2.00	5	10.00
Clean rotary clearers	25.00	1	25.00
Piece ends	.33	120	40.00
Put in roving	.25	96	24.00
TOTALS			208.30

TASK		REMARKS
Total Sides—Spin & Clean	10.	Spdl. per side, 100
Total Sides—Spin & Doff & Clean	8.5	Roving fed. 2 end (10-oz. bobbin)
Total Sides—Doff	64.	Doff interval, 8 hr.
% One Side—Doff	1.56%	Spdl. doffed 8 hr. at 85%eff., 32,000
Efficiency	85%	Lb. per spdl. @ 90% 0.60 lb.
Spin Without Cleaning	32 sides	Percent Ends Down 1000 spdl./hr. = 3%
Spin & Doff Without Cleaning	21.3 sides	Work week @ 85%, 2,040 min. (15% rest.)

Regardless of the schedule drawn up for a doff layout (with or without a percentage allotment for rest), the total minutes spent doffing one side within the weekly work period will remain the same—and this is important in making up the spinner's or the doffer's task or in correlating them.

CHART. The data shown on the accompanying chart are figurative and are used only for the purpose of explaining details. Practically all kinds of spinning combination as pertains to work-loads are shown at a glance.

A breakdown of the chart follows: In the column marked "Operations" the cleaning elements from "Brush and clean rings" to "Clean rotary clearers" will invariably remain fixed-time elements, unless there is a radical change in the cleaning schedule. The operations "Piece ends" and "Put in roving" also remain fixed-time element unless there is a change in production efficiency or until such time as new tests are made and new standards formulated. "Unit Time per Occurrence" and "Total Occurrences per 40 Hr." are self-explanatory. In the column marked "Total Min. per 40 Hr." and opposite "Totals" in the first column will be found the total minutes for all work elements except the "doff" for one side of 100 spdl. within the 40-hr. work period. This total represents "spin and clean" one side. Divide this total 208.30 into 2,040 minutes for the "spin and clean" work-load at 85% efficiency with 15% allotted for rest.

Now add 31.9 min., which is the total doffing minutes for one side for 100 spdl. in a week, to 208.30 and divide into 2,040 minutes for the work-load "spin, doff, and clean."

"Spin without cleaning" should be construed as "piece ends" and "put in roving" only. Add total minutes "piece ends" and "put in roving"—in this case 64—and divide into 2,040 min. for this work-load.

For "spin and doff without cleaning" add total minutes "piece ends," "put in roving," and total minutes it takes to doff one side in a week, as follows:

$40 + 24 + 31.9 = 95.9$. Divide this total into 2,040 min. for the work-load.

Many Factors Influence COTTON KNITTING YARN

HIGHLIGHTS: Softness Is Necessary but Is No Criterion of Suitability—Fiber-Fiber and Fiber-Metal Lubricity Both Needed—Mercerization, Dyeing, Redyeing, Stripping, and Drying Cause Variation in Value of Finishes.

By G. MELVIN COOPER*

A GOOD COTTON KNITTING YARN must have two qualities. First is its ability to run well consistently on the knitting machine to form uniform loops, and to have a minimum of holes and other objectionable features. Second is its ability to form a uniform and flexible fabric. This is exemplified in a ribbed fabric made from a well-spun gray yarn which forms a uniform narrow fabric which when stretched horizontally and released snaps back to its original shape. This might be called the management's factor. It is no presumption, that an operator is one interested in a yarn that runs well on his machine and management is interested in a quality product desired by the consumer.

In unprocessed cotton yarns, each fiber has its natural lubricants, waxes, etc., with which it is endowed by nature and which originally were meant to protect it from the elements, chiefly by means of water-repellent properties. It so happens that this waxy coating is an excellent fiber lubricant and permits the fibers to be easily drafted, and this same property is partly responsible for the fluffiness and softness of the cotton yarn or fabric. This lubricant permits the fibers to slip back easily into their normal position after a release of strain or stress on a yarn or fabric. However, this could not be accomplished if it were not for the cotton fiber characteristics—elasticity, flexibility, and toughness.

Any process that tends to destroy the natural lubricity of the yarn makes an inferior knitting yarn.

Twist is important in holding the fibers in place, to the extent that they have sufficient collective strength to perform useful service. But too much twist would imprison the better qualities of the fibers and make an inferior knitting yarn. The twist should be soft enough for the fibers to be in a relaxed position, yet firm enough so that on stretching the twist would tighten sufficiently to keep the yarn from pulling in two. It is most advantageous to have a soft-twist yarn for processing, since chemicals can be better washed out and lubricants added to make an acceptable finished yarn. Processed high-twist yarns do not knit nearly so well as the same yarns prior to processing.

MERCERIZED YARN. In mercerizing, the natural twist of the cotton fiber is removed, and the fiber, held under tension, is acted upon by the caustic to orientate the cellulose molecules linearly to create a stronger fiber and at the same time give a very smooth surface to the cotton fiber. Simultaneously, the fibers are better aligned in the yarn. During the process, a good portion of the waxes, pectins, beta cellulose, and gamma cellulose are removed; yet, due to the acquired smooth surfaces of the fiber, the loss of natural lubricants is not harmful; and, since the fibers are better aligned, there is a greater freedom of movement. However, it is important that the yarn be washed free of the accumulated salts and impurities of the mercerizing liquors before drying for the mercerized yarn to have maximum softness.

In dyeing either natural or mercerized yarn, the method of dyeing is largely responsible for the results obtained. At one time, skein-dyed yarn was definitely superior to package-dyed yarn due largely to the harsh chemical boil-out or preparatory wet-out, accompanied by the friction of the solution being driven through the yarn. Now, with the use of high-speed wetting agents and lubricative agents in the dye and rinse baths, the yarn, and especially mercerized yarn, emerges in practically as good a condition as when it entered. (The solutions forced through the yarn tend to mat the fibers of natural more than of mercerized yarns.)

In redying, the additional baths plus the stripping chemicals decrease the softness measurably, and the lubrication qualities are almost destroyed. It might be noted here that test runs have been conducted with certain auxiliary agents in the strip bath that give a very soft yarn. The proper softening agents and the proper amount of them must be given consideration in preparing a quality product from stripped yarn.

Mercerized yarn comes out of the strip bath much softer than natural yarn, yet it loses more of its lubricative qualities than the natural yarn. (Here lubrication is a factor of frictional drag on metal and is not related to softness.)

BLEACHED YARN. In peroxide bleaching, results can vary from a satisfactorily soft yarn to a very harsh yarn. Tendered yarn, which can happen if copper or iron impurities are present or if the proper pH is not maintained, does not infer harshness. The pretreatment and final washes have more to do with the softness of the finished product than do any other factor. Mercerized yarns require about one-half the peroxide necessary for natural yarns, since the mercerizing process removes most of the substances that tend to retard the bleaching action and reduced the fiber surface. In softening bleached yarns, care must be exercised

COMPARATIVE BREAKING STRENGTH
Soft Yarn vs. Harsh Yarn

40/2 CP Bleach 1/2% Cation		40/2 CP Bleach 4% Blended Wax		40/2 Merc. Bleach 1/2% Cation		40/2 Merc. Bleach 4% Blended Wax		40/2 Merc. Bleach 4% B.W. Overdried	
Break	Elong.	Break	Elong.	Break	Elong.	Break	Elong.	Break	Elong.
13.9	0.89	18.2	0.97	19.2	0.75	22.9	0.83	24.8	0.79

Only the averages of ten tests are given here. Breaks are given in ounces, elongations in inches.

* Dixie Mercerizing Co., Chattanooga, Tenn. *Condensation of AATCC intersectional contest paper prepared by South Central Section.*

WIDTHS OF JERSEY STITCH AND RIB FABRICS

for various yarns and finishes

Finish	Results from Standard 3½-in. machine, 220 needles, 42 gage. Jersey stitch.						Results from Brinton 4½-in. machine, 340 needles, 32 and 36 gage. Rib.						
	Developed Navy on		Stripped Yarn				Developed Red I on				Developed Red II on		
	Merc.	CP	Merc.	No. Holes	CP	No. Holes	Merc.	CP	Waxed Merc.	Waxed CP	Merc.	Cp	Waxed CP
CP Gray	4.125″	4.125″	——	—	4.125″	—	3.50″	3.50″	3.50″	3.50″	3.50″	3.50″	3.50″
Merc. Gray	4.125″	——	4.31″	—	——	—	3.34″	——	——	——	3.44″	——	——
No Finish	1.2	5.3	4.4	3	6.0	2	10.6	14.3	7.1	13.7	5.7	7.1	2.3
Wax Disk.	−2.7	1.5	−1.5	0	1.2	0	——	——	7.1	13.7	——	——	2.3
1/8% Cation	2.8	3.0	3.0	4	−2.3	6	——	——	——	——	2.3	6.3	1.4
1/5% Cation	——	——	——	—	——	—	6.3	10.6	2.9	7.1	——	——	——
1/2% Cation	0.0	0.0	0.0	10	−2.7	6	——	——	——	——	0.0	0.9	−3.4
1% Cation	——	——	——	—	——	—	−2.9	3.4	−3.7	0.0	——	——	——
1% Sul. Veg. Oil	1.2	4.6	3.0	11	3.8	2	——	——	——	——	——	——	——
2% "	——	——	——	—	——	—	5.2	12.6	1.7	8.9	2.8	8.9	3.4
3% "	0.0	2.3	1.5	6	0.0	7	——	——	——	——	——	——	——
10% "	——	——	——	—	——	—	4.3	12.6	2.9	8.9	——	——	——
1% Epsom Salts	——	——	——	—	——	—	4.3	8.9	0.8	5.2	3.4	7.1	2.8
1% Sol. Min. Oil	1.2	2.3	3.8	18	4.0	6	——	——	——	——	——	——	——
2% "	——	——	——	—	——	—	6.3	12.6	3.4	8.0	——	——	——
3% "	1.2	3.8	4.4	1	3.0	3	——	——	——	——	——	——	——
10% "	——	——	——	—	——	—	8.9	12.6	7.1	8.9	8.9	11.4	5.7
15% Tallow & Min. Oil	——	——	——	—	——	—	——	——	——	——	10.6	21.2	12.8
2% Stearic	2.0	——	4.4	1	4.6	1	——	——	——	——	——	——	——
3% "	——	——	——	—	——	—	6.3	10.6	3.4	5.2	——	——	——
4% "	0.6	3.0	4.4	0	3.0	1	——	——	——	——	——	——	——
20% "	——	——	——	—	——	—	5.2	8.9	2.9	6.3	7.1	10.6	5.1
2% Blended Wax	0.0	3.0	4.4	0	3.0	0	——	——	——	——	——	——	——
3% "	——	——	——	—	——	—	7.1	12.9	3.4	7.1	——	——	——
4% "	0.0	4.6	1.5	0	4.0	1	——	——	——	——	——	——	——
20% "	——	——	——	—	——	—	5.2	8.9	3.4	7.1	7.1	10.6	5.1

First two lines show width of fabric in inches; all others express percent variation from CP (combed peeler) gray yarn and show an increase in width unless preceded by a minus sign. The columns showing number of holes refer to a 6-in. length.

to determine the degree of need of softening or lubrication. A certain percentage of any one finishing agent will not take care of all conditions.

When it is stated that two factors are necessary for a good knitting yarn, it is implied that it is possible to have one and not the other. That definitely is a fact. It is possible to knit a yarn on a ribber and produce a narrow fabric with great snap back, but the same yarn run on a plain jersey-stitch machine may result in a fabric that is full of holes or may result in a complete cutting-out of the fabric. Also, it is possible to knit a yarn satisfactorily on a jersey machine; but the same yarn on a ribber may produce a harsh-looking fabric, 30% wider than normal.

TWO KINDS OF LUBRICITY. Lubricity is a word denoting slipperiness. In the first case in the above paragraph, the yarn knit on the ribber made a fabric narrower than the needle cylinder; when stretched and released, it returned to its original width. The fact that it made a narrower fabric than the needle cylinder indicated a contraction of yarn, which would necessitate yarn slipping over yarn; and again, when the fabric was stretched, yarn slid over yarn and was slippery enough to permit the yarn to slide quickly back in place upon its release. Yet that same yarn was not slippery enough to slip on the sinkers. This yarn had what can be termed fiber-fiber lubricity.

In the second case, the yarn slipped on the sinkers satisfactorily but, when placed on the ribber, produced a fabric the same size as the needle cylinder. This indicates that the yarn did not slip in the loops and did not have fiber lubricity; but, since it did slip on the sinkers, it did have yarn-metal lubricity.

EFFECT OF FINISHES. Many different compounds have been found to have an effect on the ability of various processed cotton yarns to be knit. Drying, especially overdrying, and waxing also were found to exert an influence. Some of the details can be found in the accompanying table. In the main, the following conclusions were reached:

I. Softness is not in itself a criterion for a suitable knitting yarn. It is a necessary factor.

II. The term lubrication can be vague, since an agent that acts as a lubricant for one type of material may be inadequate for another.

III. The classification of all yarn-finishing agents as softeners is incorrect.

IV. There should be a differentiation of types of finishing agents to make their uses more understandable.

V. Cotton fiber in itself is soft under all, except parchmentized, conditions. It is when the fibers cannot assume their normal positions that a yarn is not soft. This being so, a lubricant is necessary for the fibers. It can be termed a fiber-fiber lubricant.

VI. A fiber-fiber lubricant is, as a rule, not suitable as a yarn-metal lubricant.

VII. Stearic acid, since it is not film forming, is in a group by itself. It does give body to yarn, and it might be said that it cushions the fibers. Overdrying, however, will make it an anti-lubricant.

VIII. The amount and selection of the lubricant added should be governed by the condition of the yarn that is being considered.

IX. A yarn-metal lubricant can be applied on an emulsion roll. A fiber-fiber lubricant has to be applied in a finishing bath (when applied on an emulsion roll it would give yarn-yarn lubricity).

X. Matted and roughened fibers constitute harsh yarn.

XI. The smooth fibers of mercerized yarn are more adaptable to processing and are more easily lubricated.

XII. There are many difficulties attending the use of cations; otherwise, they would solve many knitting-yarn problems.

XIII. Lubricants that dry to a hard, waxy film are not affected by overdrying, but those that are lubricants in the oil phase are affected.

Sweetwater Hosiery Mill

HIGHLIGHTS: Fluorescent System Replaces Old Incandescents — High Level of Intensity Aids Eye-Comfort and Increases Production.

Above. General view of knitting room shows arrangement of knitting machines. Lamps in continuous rows are mounted 8 ft. above the floor. Note ease with which operator is making a tie.

Left. Looping is a tedious and exacting task. Supplemental individual lamps were installed, but found unnecessary as general lighting is ample. About 65 foot-candles are obtained at work level.

THE SCIENCE of seeing and the science of illumination have been combined to provide a lighting installation at Sweetwater Hosiery Mills, Sweetwater, Tenn., that has justified the initial investment required.

Interest in employee comfort prompted O. K. Jones, treasurer and superintendent, to call in an oculist firm from Chattanooga, Tenn., to check the eyes of the employees of this knitting mill and to provide glasses when needed. The quality and intensity of light needed for various tasks was specified and the problem then turned over to the Sylvania Electric Products Corp. for installation of a lighting system to meet the requirements.

This mill operates two 8-hr. shifts on circular-knit women's hose and men's half hose that are marketed under the brand name of "Mascot." Good lighting is essential, especially for some of the more delicate operations required.

An investigation of the old incandescent system indicated that some additional light-load could be carried on the present distribution system, but the total load could not be increased to give the high levels of foot-candle intensity desired. It was then decided to change over to fluorescent-type lamps, and Sylvania's HF 100R industrial fixtures were selected for the new installation. Since the present system did have some additional capacity, it was found that the new system could be installed without discarding the old feeders. WPB limitations made this procedure advisable. The present conduit runs were utilized and few changes in the distribution system were necessary.

The main lighting distribution panel was located near the load center, and the load was properly balanced without the use of additional critical material. The lamps were installed in continuous rows over the knitting machines at about 8 ft. above the floor, furnishing a high intensity on the machines and even enabling the fixer to adjust jacks and needles without

Goes ALL-OUT FOR LIGHT

Above. Seamer department where false seams are placed in circular knit hose. Previous lighting was 37 foot-candles—present system delivers 85 foot-candles.

Above Right. With 45 foot-candles on the work, inspection is rapid and easy, as eyestrain and glare have been eliminated.

Right. Fixer adjusting machine. No flashlight is required for making machine adjustments. Light penetrates well into the cylinder and down under the head. Test indicates 50 foot-candles at this point.

Photos courtesy of Sylvania Electric Products, Inc.

the use of the customary flashlight. Both hands being free insured faster and more accurate work. It was also found that the light penetrated well down into the cylinder and under the head where adjustments are frequently required.

In general, the old system delivered 23 foot-candles on the working plane. After one year's operation, with normal maintenance and cleaning of reflectors and tubes, the new system, according to recent tests, is delivering 65 foot-candles in the knitting areas. Under similar conditions 85 foot-candles are obtained at the seamers. Variations from these two intensities are obtained in other areas. In the looper area the lighting installation resulted in the elimination of objectionable glare.

The accompanying pictures give an excellent idea of several of the operations affected, as well as a general view of the knitting room.

"We did not keep definite records of improved output due to re-lighting," states Mr. Jones, "but we are satisfied that the mill, as a whole, is producing a greater amount and a better quality with far less spoilage loss and seconds since this installation. A definite check on the seamer operations indicates an increased production with a less number of menders, seconds, and pressoffs. Installation was made by Ramsey Electric Supply Co., Chattanooga, under supervision of Sylvania Electric Products, Inc.

Complete Field Hospitals Delivered by Air

Paratroopers land far behind enemy lines . . . Next come parapacks—some marked by a red cross. These Medical Rolls contain complete supplies for aiding the wounded.

The outer shell of the Roll is made of O. D. osnaburg, a hard texture, heavy cotton duck. Over each end are cotton duck end caps reinforced by Cotton Webbing straps.

The Medical Roll has capacity for aerial delivery of a 300-pound load, and can be released from bomb shackles or thrown overboard. A static line opens the parachute automatically.

These compact units deliver complete field hospitals in perfect condition to our Paratroops.

Mills making fabrics for our Armed Forces depend on Butterworth Machines at every step in the Wet End of Textile Finishing . . . bleaching, boiling-out, drying, calendering, dyeing.

Butterworth Engineers freely offer their cooperation to every mill seeking increased productive capacity . . . to develop new machines to meet special problems . . . to improve plant layout.

Write for our folder "Announcing a Policy on Orders Taken Now for Post-War Delivery."

H. W. BUTTERWORTH & SONS CO.
Phila. 25, Pa. Serving Textile Industry since 1820
Offices in Providence, R. I. and Charlotte, N.C.
In Canada: W. J. Westaway Co., Hamilton, Ont.

Butterworth

Color Aids Offer LUBRICATION CONTROL

HIGHLIGHTS: System Employing Color for Control of Type of Lubricant and Frequency Simplifies Mill Lubrication — Inexperienced Help May Be Used for Handling This Work.

SURELY NO OTHER PHASE of plant maintenance deserves more care and attention than lubrication of the machines, for production efficiency depends directly upon continued proper lubrication. In fact, lubrication directly affects life of the machine.

While proper lubrication is one of the most important phases of textile-mill maintenance, there are many practical difficulties that often make continued, efficient lubrication almost impossible in many mills today.

In the first place, every textile machine purchased usually arrives with detailed instructions concerning lubrication. With the large number of different types of processing machines found in a mill, you come up with "lubri-chaos"—a lubrication problem that is a hopeless jumble because some 40 or 50 lubricants may be specified in many grades and types.

An extreme case, but illustrative of what can happen, is the bearing that burned out even though it had been lubricated. On investigation it had been found that someone had filled the bearing with shellac! Someone had mistaken shellac for oil.

A system utilizing color symbols as a means of controlling the type of lubricant and the frequency of lubrication has done much to eliminate "lubri-chaos." This system, known as the Coloroute Plan and developed by Alemite Div., Stewart-Warner Corp., is so designed that a new employee or even a woman can be given the job of oiling and lubricating, and efficient results will be assured.

PRACTICAL PROGRAM. A number of mills have worked out lubrication-control systems that function satisfactorily. One of the most promising of the systems so far developed employs a keying scheme which involves use of a colored and specially shaped identification washer. The color indicates the lubricant required; the shape tells how often it should be applied. One of these washers is slipped under the grease-gun fitting or mounted in plain sight with a brightly colored arrow painted on the machine to spotlight the place to be lubricated. At the same time, all grease guns, oil cans, and lubrication containers are colored with this same identification scheme.

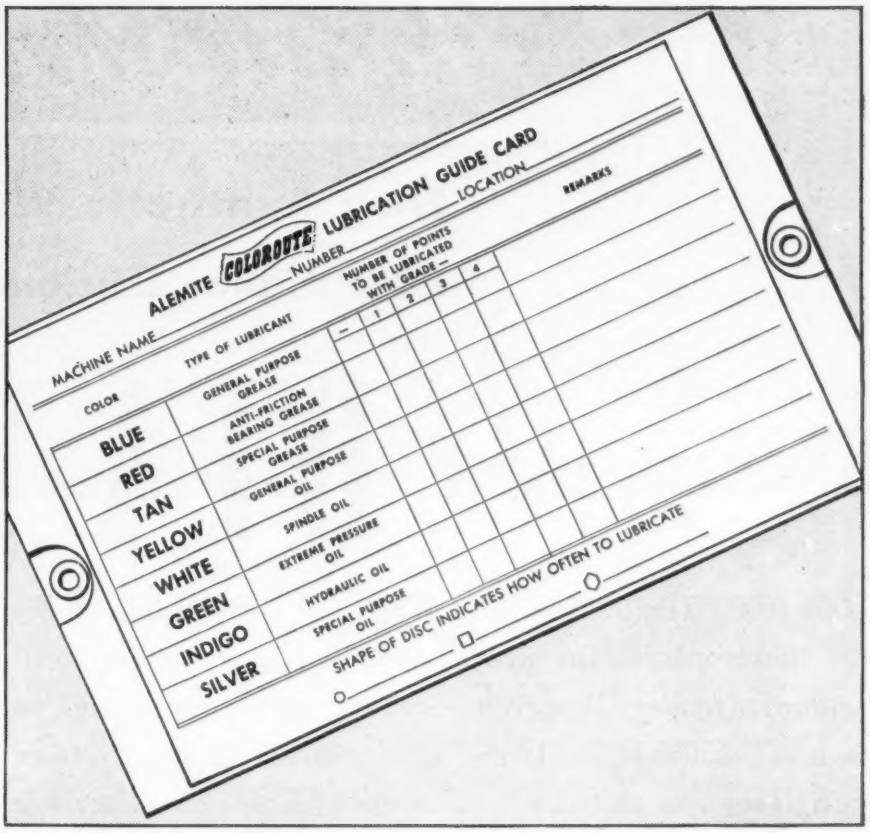


Fig. 1. A guide card is prepared for each machine in the mill, showing lubrication points and frequency of oiling. The card is then attached to the machine.

Let's see how this system works in solving the lubrication problem.

REQUIREMENTS SURVEYED. First, to eliminate overlapping and duplication of lubricants, a qualified lubrication engineer surveys every machine and lubrication requirement in the mill. He then recommends the correct type and grade of lubricant for every point to be lubricated. Duplication is avoided by selecting types and grades from the line of a single manufacturer.

A "guide card," like that in Fig. 1, is prepared for each machine to show its lubrication requirements. This is attached permanently to the machine where it is always available for reference. This card provides space for the machine name, machine number, and machine location. Then the types of lubricants are listed in the second column as: general purpose grease, anti-friction-bearing grease, special-purpose grease, general-purpose oil, spindle oil, extreme-pressure oil, hydraulic oil, special-purpose oil.

First column carries the color designations allotted to these various lubricants. Third column carries spaces for designating number of points to be lubricated with the various grades of lubricants under the type classifications. Special instructions or notes appear in the fourth column.

These eight classifications usually cover the lubrication requirements of any one particular machine.

At the same time the type of lubricant is determined for each application, and the frequency with which it should be applied is also recorded for use in setting up the control system

DEVELOPED FOR *Postwar* ...BUT *Available Now!*

New Synthetic Wetting Agents of Exceptional Efficiency and Versatility:

QUAKER DIANOLS

DEVELOPED for postwar sale, these outstanding products of Quaker Research are now available in large quantities . . . thanks to earlier-than-expected release of raw materials.

To the best of our knowledge, the new DIANOLS are the most efficient wetting agents on the market, based upon applied cost.

They are non-volatile at the drying temperatures used for textile processing, so are outstanding *re-wetting* agents. This characteristic makes them uniquely satisfactory and efficient for the sanforizing process.

Subsequent announcements will present detailed data on the individual Quaker DIANOLS. Some of their outstanding characteristics are:

- **Most efficient on the basis of applied cost.**
- **Applicable to all phases of wet textile processing requiring a synthetic wetting agent of high quality and low applied cost.**
- **Stable and effective in solutions of 1-12 pH.**
- **Are excellent sanforizing and re-wetting agents.**
- **Stable and effective in hard or soft water and over a wide range of temperatures.**
- **Do not discolor white goods or alter shades.**
- **Rapidly wet out cotton, wool, rayon or acetate fabrics.**

QUAKER CHEMICAL PRODUCTS CORP.

CONSHOHOCKEN, PA.

Other Plants in CHICAGO and DETROIT Warehouse Stocks in Principal Industrial Centers

For more information on DIANOLS fill in below, tear out and mail.

A Progressive Organization of Research and Process Engineers and Manufacturing Chemists

Name_____ Position_____

...PLEASE PRINT COMPANY NAME AND ADDRESS IN MARGIN BELOW...

which will be described as follows:

From the guide cards, a master lubrication-analysis chart is prepared. Such a chart for the Star Knitting Co. is shown in Fig. 2. Note that here only seven different lubricants are required for the entire plant. The chart carries the color-identification scheme and also the frequency symbols indicating number of points to receive the various lubricants daily, weekly, monthly, every six months, and yearly.

SIMPLIFICATION. Records are prepared listing each machine, every lubrication point on it, the lubricant it should have, and the frequency with which it should be applied. Results of using this system show that practically every mill can eliminate 30% to 75% of the number of different lubricants that it now uses.

Of course this means greatly reduced inventories; smaller storage-space requirements; simplified ordering, storing, and handling; lowered cost because of quality discounts obtainable on the larger volume of the few lubricants chosen; reduced waste; and so on.

OPERATION OF SYSTEM. Operation of the Coloroute Plan is as follows:

First, all lubricants are positively identified throughout movement along the entire path from incoming barrel to machine bearing. As shown on the master chart, Fig. 2, each lubricant is assigned a color. These colors have been carefully chosen so that they hold true under all types of lighting equipment.

Those colors standardized upon, as listed in Fig. 1 are blue, red, yellow, white, silver, green, tan, and indigo. When more than these eight colors are wanted, identification is supplied by use of numbers superimposed on the colors. Thus in a sample master chart, any number of identifying marks can be obtained by adding numbers to the colors to produce color-number combinations. This scheme can be extended to cover as many lubricants as may be required.

Upon receipt in the stock room, each container is marked with the color-number key assigned to it. Then all other containers, grease guns, oil cans, or other equipment for handling that lubricant also carry the same color-number key. This affords positive identification of all lubricants, no matter how they are handled before finally finding their way to a machine bearing.

This is the first important step in seeing that the right lubricant gets in the right place.

Color numbers are supplemented by the identification disks, or collars, placed at each lubrication point on the machines. Following the same color scheme, they prevent putting in the wrong lubricant, for the operator would see that the colors did not match.

This also helps inexperienced workmen who may be doing the lubrication, since all they need do in servicing a machine is to select a grease gun or oil container bearing the same color key as the point they are to lubricate.

Since each point to be serviced is marked by a brightly colored identification disk, workmen find it easy to locate all points to be lubricated. This assures serving points that otherwise might be overlooked because of the worker's unfamiliarity with the machine.

CONTROL OF TIME FACTOR. Possibly the most frequent cause of over or under lubrication is not excessive or inadequate application of lubricant when servicing the machine but, instead, is application at too short or too long intervals of time. The shape of the identification disks used at each lubrication point is employed as a key to help avoid this difficulty by indicating the frequency with which that point is to be serviced.

For instance, the key frequently used employs a marker, circular in shape, at points requiring daily lubrication. In the same way, a square-shaped marker indicates need for weekly servicing; an octagon, monthly; a triangle, every six months; a diamond, yearly.

Identification markers are usually in the form of plastic disks mounted under the grease-gun fittings or fastened on the machine alongside the point to be serviced. Since the color is integral with the disk, it cannot be scraped off. Too, the plastic material is easy to clean.

Lubricating a machine then becomes a relatively simple job. A blue marker means to service that point with a grease gun carrying a blue marker, in turn filled from a container also blue marked, in turn filled from a barrel also blue marked . . . almost foolproof.

ALEMITE COLOROUTE SYSTEM

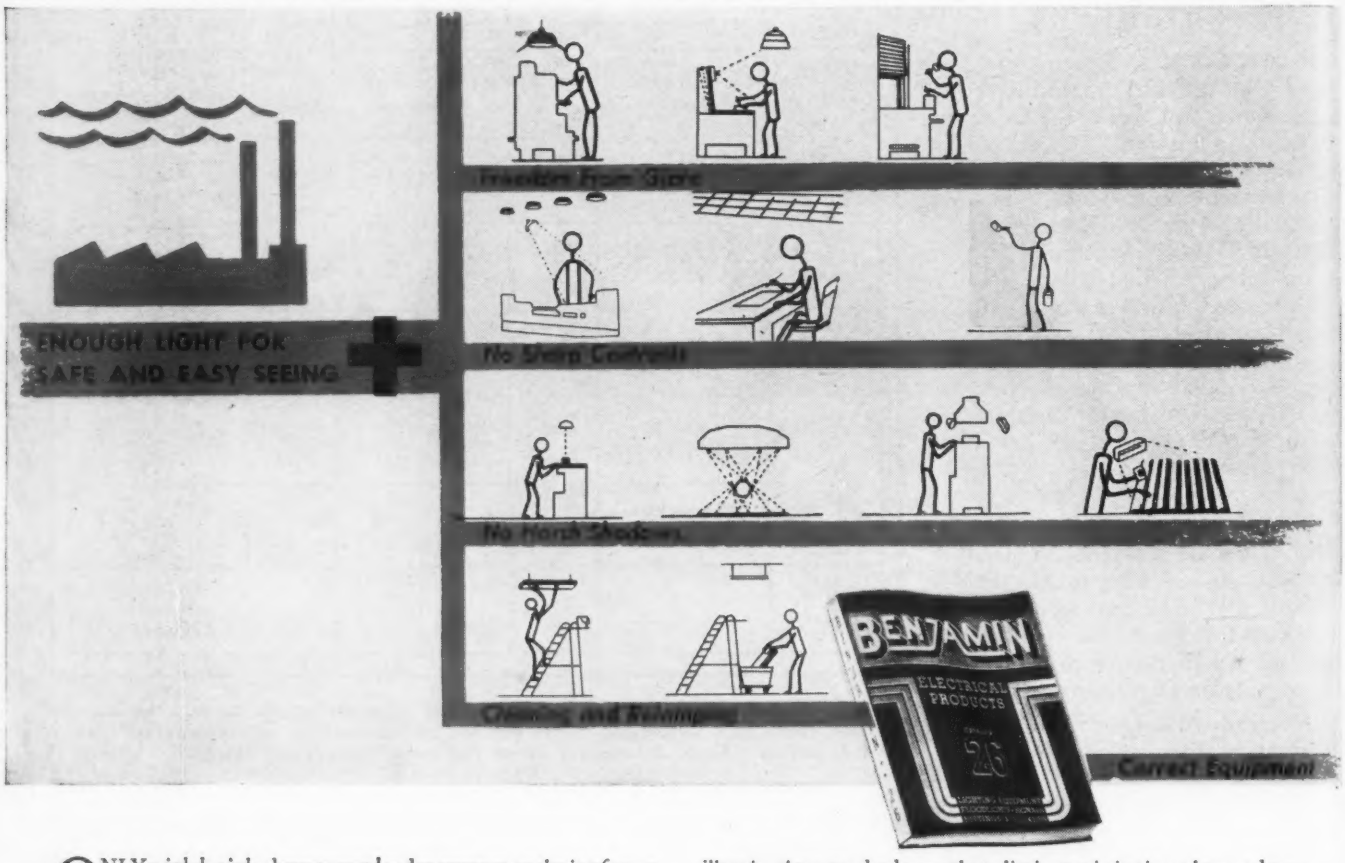
STAR KNITTING COMPANY

FALL RIVER, MASS.

Color	Lubricant	○ Daily	② 2 Days	□ Weekly	2 2 Weeks	⬡ Monthly	⬡② 2 Mos.
ALEMITE BLUE	ALEMITE NO.33	219	65	126			
ALEMITE RED	ALEMITE NO.38					20	336
ALEMITE YELLOW	ALEMITE NO.27	356		126	236		
ALEMITE SILVER	ALEMITE NO.28					4	
ALEMITE GREEN	ALEMITE NO.90					7	
ALEMITE TAN	ALEMITE 40% Graphite					146	
ALEMITE INDIGO	ALEMITE No.1 Oil			4			
ALEMITE WHITE							

Fig. 2. Master chart is prepared from the different guide cards showing the various lubricants employed, total number of lubrication points, and frequency of lubrication. Seven lubricants cover the requirements for this mill.

How does Your Lighting Check Up with Today's Higher Standards?



ONLY a job by job, department by department analysis of your lighting can determine the answers to the question: "How Does Our Lighting Check Up with Today's Accepted Standards?"

Such a check up will reveal:

1. **Are we providing our employes with the necessary light for easy and comfortable seeing?**
2. **Where and how can annoying direct and reflected glare be reduced?**
3. **What must be done to the lighting and to the working surfaces, the walls and ceilings to reduce sharp brightness contrasts which interfere with good seeing?**
4. **Where must sharp shadows be eliminated?**

Much of your production efficiency depends upon the proper answers to these questions. Lighting that meets today's higher illumination standards . . . that eliminates irritating glare and uncomfortable brightness can also be an important influence for better labor relations.

You can be sure of obtaining maximum results from your lighting by specifying Benjamin Lighting Equipment. Such specification assures you of lighting that conforms to all recognized industry standards through lighting equipment that is scientifically designed to provide proper shielding, adequate diffusion and efficient direction of light where most needed.

Without cost or obligation on your part, let us place your name and the names of your associates on our list of those to receive the various Benjamin bulletins and other data to be made available during the next few months. These will be helpful to you in making a study of your lighting and in planning needed improvements. Just write Benjamin Electric Mfg. Co., Dept. EE, Des Plaines, Illinois and ask for Benjamin Re-Lighting Service Data.

Again Available—

BENJAMIN TWIN-FLO
Fluorescent Units with Porcelain Enamel Steel Reflectors!

BENJAMIN
TRADE MARK
Lighting Equipment
Distributed Exclusively Through Electrical Wholesalers

Rayon, Nylon, Fiberglas Are Entering NEW FIELDS

HIGHLIGHTS: Symposium on Synthetics at AATCC Meeting Reveals New Uses—Fiberglas Greatly Increases Strength of Laminates—Residual Shrinkage in Nylon Can Create Novel Effects—Rayon-Wool Blends on Cotton System.

SHEERER FILAMENT-RAYON cloth, wider use of synthetic staple, super-strong fireproof glass fabrics, and better methods for finishing nylon are all here now and will become of increasing importance in the immediate future.

These facts, and many others, were told to the New York section of the American Association of Textile Chemists and Colorists at their meeting last month. Names of speakers who were guests of the association and abstracts of their papers follow:

JAMES SLATER, *vice president and director of research, Owens-Corning Fiberglas Corp., Toledo, Ohio.*—

Fiberglas and plastic laminates, coated Fiberglas cloth, and fireproof fabrics are important to the immediate future of spun glass since they utilize two outstanding inherent characteristics of glass-yarn textiles.

"Fiberglas-plastic combinations possess extremely high strength in proportion to their weight. Test specimens have shown tensile strengths of from 50,000 to 80,000 lb. per sq. in., compression strengths of over 50,000 lb. per sq. in., and inpact strengths of over 30 ft. lb., as compared with 2 ft. lb. for ordinary plastics." Some plastic laminates have been made with a web of glass fibers, thus eliminating spinning and weaving.

Coated Fiberglas fabrics with high tear strength withstand repeated flexing, are resistant to fungi, and have high dimensional stability. Some such fabrics are flameproof and have high resistance to moisture penetration and to destruction by gasoline, oil, greases, and many chemicals.

Colored Fiberglas fabrics are "potentially suitable for wide use as drapery materials in the post-war homes. This would be particularly true of seashore homes where salt air and strong sunlight play havoc with some of the more familiar drapery materials, and where high humidity often causes other materials to stretch and sag."

Glass staple is manufactured by being spun at a speed of two to three miles per hour from the base of a melting pot. In spinning, the filaments are attenuated to a fraction of their original diameter and by means of a steam jet are broken up into staple which falls onto a conveyor belt. Standard textile machinery has been adapted to handle glass staple.

Staple is currently manufactured with a diameter of 0.00023 to 0.00038 in. Experimented staple has been spun as fine as 0.00002 in. with an almost unbelievable strength of 3,500,000 lb. per sq. in.

RENE BOUVET, *superintendent of the Textile Development Unit, American Viscose Corp., Marcus Hook, Pa.*—

Rayon staple blended with wool and spun into worsted yarn on cotton machinery is developing along with the wider use of synthetic staples. An example is the new 1.0-den. viscose blended with 70s wool.

"The advent of a new staple fiber means countless additional possibilities because it can be used not only by itself, but also blended with any or all of the host of natural or synthetic fibers such as wool, cotton, flax, animal hair, acetate rayon, nylon, Vinyon, Aralac, resin fibers, etc. Technicians and designers are fully aware of the potentialities held out by blending and are ready to translate into concrete form an accumulation of novel ideas, the realization of which is held in abeyance while industry is engaged in the war program.

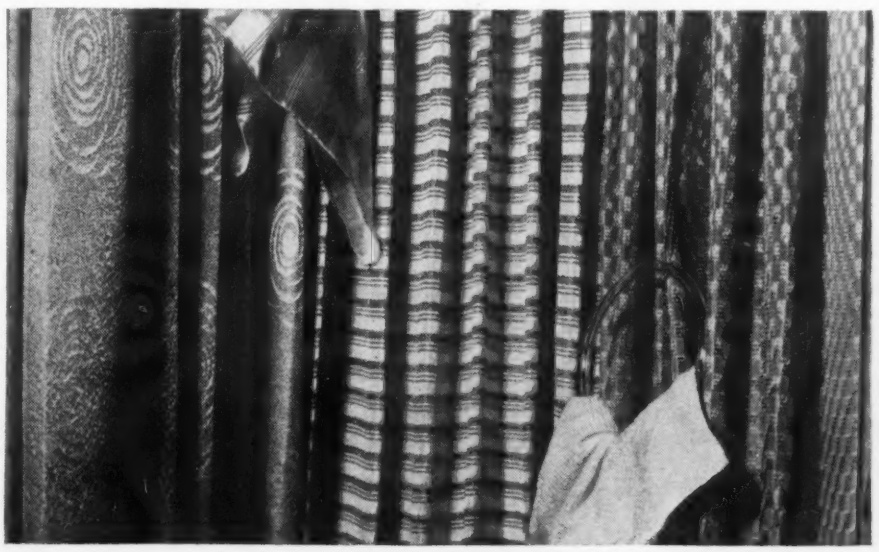
"The very recent development of the 1.0-den. high-strength rayon staple, makes it possible to produce new fabrics of great interest, light in weight, strong, soft and silky, desirable for blouses, handkerchiefs, men's shirts.

"The high strength of the 1.0-den. staple not only raises the spinnability to new heights, but also allows the introduction of lower-strength staple fibers, possessing desirable characteristics, such as wool or acetate. The strength of the blend thus obtained is still excellent in yarn as fine as 60/1, and fabrics constructed with such fine yarn, plied, have an unquestionable appeal as women's wear."

The future of continuous-filament rayon will undoubtedly be towards finer yarns and lighter cloths. An example is the popular Cynara fabric now made with 150-den. acetate combined with 100-den. viscose. It conceivably may be replaced by a fabric using a 40/55 combination yarn. A sheer fabric foreseen is made of 40-den., 40-fil. rayon containing 65 turns.

As to finishing spun rayons, excel-

(*Continued on page* 107)



Colored Fiberglas can be used for a variety of attractive fireproof drapery materials that have dimensional stability and resistance to deterioration.

THROW MOLD OUT FOR KEEPS!

Mold costs money. Don't feed it by permitting the existence of conditions that promote its growth . . . throw it out for keeps. No matter what your problem, in this respect, one or more of the Dowicide family of seventeen products is ready to help you in two ways . . . to bolster the resistance of the finished product against fungi and bacteria . . . to prevent malicious growth during processing.

Dowicides are economical . . . thoroughly tested . . . proved by years of industrial acceptance.

In the textile industry, Dowicide has proved its value in several ways:

First, it protects stock from spoilage due to mold attack during manufacturing operations.

Second, it can be incorporated into the product to produce mold-resistant fabrics to be used under conditions of high humidity. These include tarpaulins, canvas, awnings, etc.

Third, it provides protection against rot for canvas that comes into contact with the soil.

Dowicide products are economical . . . effective . . . easy to apply. For further information on how to throw out mold for keeps, write the Dowicide Division.

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DOWICIDE

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Among the many Dow products serving the Textile Industry are: Ethocel, Saran, Methocel, Caustic Soda and Vat Dies.

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

Plastics Offer Solution to CORROSION PROBLEM

HIGHLIGHTS: Corrosion Protection in Finishing Plants Cannot Be Disregarded—Plastics Characterized by Inertness to Chemical Fumes and Water Vapor—Low Cost and Long Life Result From Proper Selection.

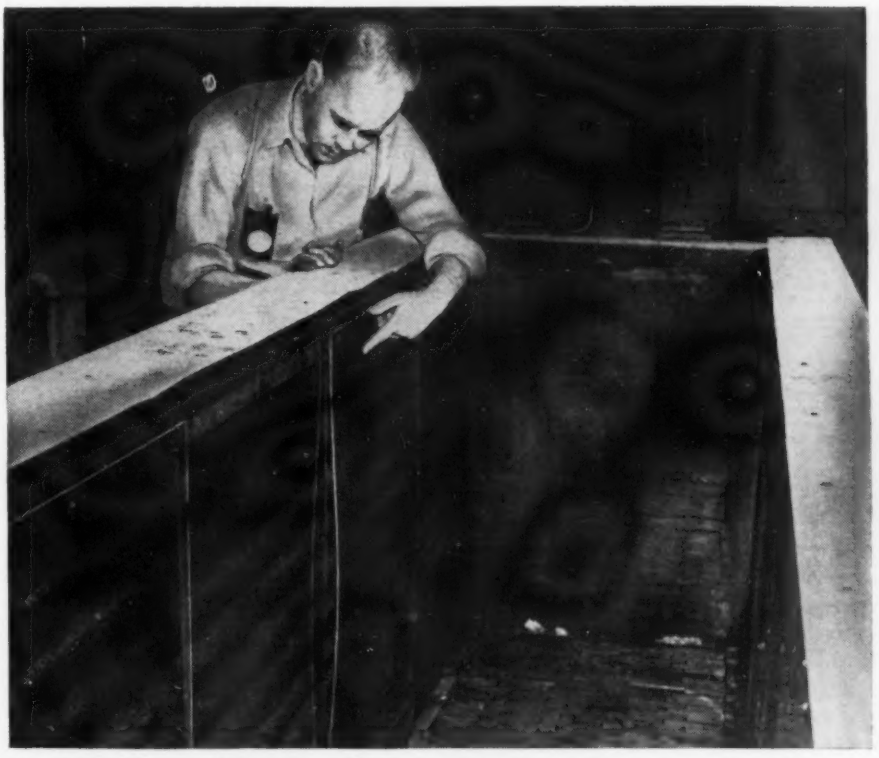
By C. NORRIS RABOLD
Consulting Editor, TEXTILE WORLD

THE SUSCEPTIBILITY of metals to corrosion attack in print works, bleacheries, and dye plants is common knowledge. In such plants, particularly in wet-processing departments, enormous quantities of water are evaporated, often in small confines of space and sometimes without adequate provision for removal. In this same atmosphere, chemical fumes with acidic, reducing, or oxidizing natures are often present. In fact, due to careless handling on the part of an operator, the chemicals themselves in concentrated form may come in contact with metallic surfaces. Such conditions are particularly prevalent in dyehouses around dyeing machines, jigs, kettles, and other equipment. Machines for boiling off gray goods, print soapers, etc., are also subject to corrosion attack.

All of these machines, unless carefully hooded and ventilated, generate the water vapors and fumes which attack the existing metallic surfaces around them, such as the beams and supporting structures of the building itself; water and steam lines; electrical conduits; junction, switch, and fuse-boxes; and other auxiliary metallic equipment.

Even in plants that have adequate ventilation, the devices provided for the removal of fumes and vapors are themselves often subject to attack which means that attention must be given to their protection; otherwise, frequent replacement is necessary.

Plastics hold much promise for the mechanical department, which usually is held responsible for the protection and maintenance of physical equipment. Too often, this harassed group acquires a resigned attitude towards fighting corrosion when it sees paint flake off or decompose in a short time after application, pipes rusting, conduits and switch-boxes eaten up, wiring with the protective covering hanging in shreds, fan blades vanishing, and supporting structures falling down. Nothing protects surfaces for any length of time, they think, so why bother to protect them at all? Piping, wiring, etc. just have to be removed every few years, they argue, so all one can do is figure on replacements.



Clear "Lucite" methyl methacrylate resin sheets used to line tanks resist acid and sudden temperature changes. They are also suitable for covers and hoods.

Plastic materials, if properly selected, seem to be the answer to many corrosion problems that exist at present. In some instances, they can serve as better and longer-lasting replacements for a metal unit now in use; while in others, they can be utilized as a protection for existing structures.

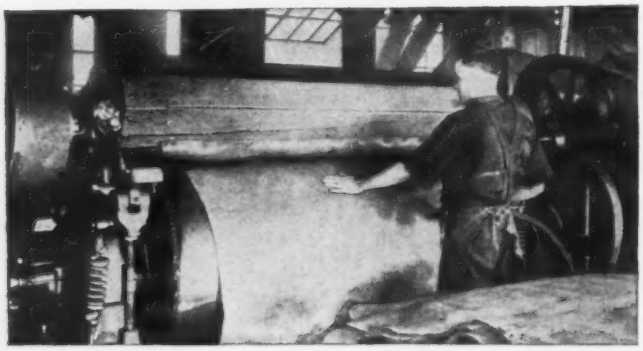
PROTECTIVE COATINGS. The paint and varnish industry has made tremendous strides forward in the last 10 to 15 years, and the achievements, encouraged by the war, are truly remarkable. Limited for years to drying and semi-drying oils, resins, natural and fossil gums, etc., for paints and lacquers, this industry was quick to investigate plastics materials as they were developed. These new chemical compounds were found to possess characteristics and properties that made them far superior to the natural gums and resins for some purposes, while several types blended with gums and resins materially improve the qualities of such coatings.

Phenolic resins, cellulose acetate, urea resins, nitro-celluloses, melamine resins, alkyd resins, vinyl resins, acryloid and methacryloid resins, ethyl cellulose, certain synthetic resins derived from resin, chlorinated rubber, and other synthetic rubbers are now being used individually, blended with natural oils and resins, or in combination with each other in paints and varnishes.

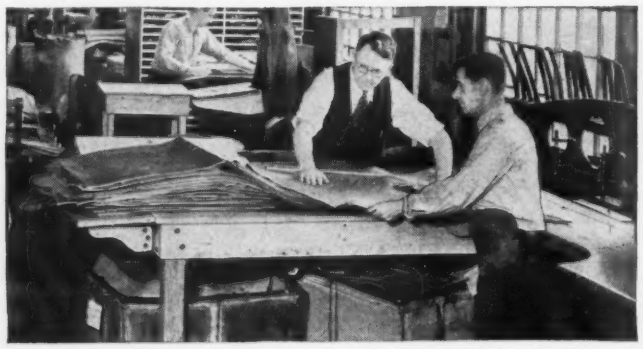
The results are coatings with greater water, acid, and alkali resistance, and

IN many a weave room today you can look up and down a row of looms and see plenty of orange color — pickers, check straps, lug straps and other leather products all colored alike — the distinctive orange which identifies Graton & Knight's "Hairitan" leather.

The WHY for all the *ORANGE* in the weave room



"Hairitan" is an exclusive tannage for loom services — giving you the greater resiliency and longer life which you demand for those services. Improvements made during the early part of the war have convinced users that "Hairitan" — with its great resiliency and high tensile strength — is at least the equal of any "European-type" hair-on leather.



You can depend upon uniformly high quality in "Hairitan" products because they have been tanned and finished *under one roof,* under one control of quality. Graton & Knight, making many types of industrial leather goods, can select for "Hairitan" the most suitable hides . . . and through every stage of manufacture, develops the qualities most desirable for your loom leathers.

The ORANGE LINE

One Quality Control from Hide to Loom

PICKMASTER PICKERS with the famous "Life Saver" hole

BLOCK PICKERS extra-resilient, cemented under pressure

"TWO-FOLD" CHECK STRAPS straight or endless

JACK & FLAT HARNESS STRAPS for heavy duty work

ROUND HARNESS & DOBBY STRAPS center-stock "Hairitan"

LUG STRAPS 4 or 5 ply folded, stitched; 2 or 3 ply, cemented

LUG HOLD-UP STRAPS . . . BUMPER OR SPINDLE STRAPS 1 or 2 ply

All "Hairitan" products are identified by orange color on the flesh side.

Graton & Knight also manufacture oak-tanned pickers, lug straps, bunters, box plate and binder leathers . . . "Research" rub roll aprons . . . G&K condenser tapes . . . G&K comber and gill box aprons . . . "Research" leather belting.

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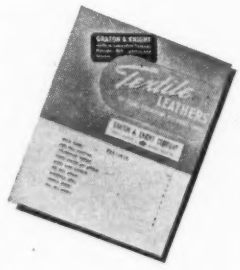

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with greater flexibility and adherence than ever before. Naturally, some coatings possess better corrosion resistance than others, and some combinations are superior to others. Therefore, knowledge of specific formulas as required for a given set of conditions becomes necessary.

MOLDED FORMS. Resins are not only important from the protective-coating angle, but also in their molded forms seem ideally suited for use under conditions of severe exposure. For example, fan blades operating in exhaust ducts could be made of plastic instead of metal; switch and fuse-boxes, now made in some cases partially of plastics, could be entirely so; plastic boards and sheets could be used as a protective covering for exposed equipment. Their use for the construction of fume hoods and ducts is indicated where metals would deteriorate quickly.

Certain plastics in their extruded form offer interesting possibilities in the replacement of metal piping and conduits. In rigid form they are made in standard pipe sizes with standard fittings, such as elbows, toes, caps, etc., and can be threaded and fitted just as metal piping. These resist to the highest degree weathering, water, solvents, acids, alkalies, and oxidizing agents. The same resins, extruded as flexible tubing in a variety of sizes possess the same resistance as do the rigid forms.

Unless considerable internal pressure is to be exerted, the flexible tubular forms are preferable to the rigid. They can be bent around corners and into awkward places without the necessity of cutting, threading, and fitting. Since they are light in weight, support is no problem. Some types can be joined by a simple flaring of the ends to take a small molded screw connection. With others, heating of cut ends on a hot surface and butting them together results in a weld as strong as, or stronger than, the original material. Synthetic tubing of this type seems destined to replace present electrical conduit of the semi-rigid type.

Of course, conceivably there may be no need for conduits at all if synthetic wire coatings replace rubber and if these coatings can withstand innumerable flexings without cracking; if they can resist oxidation, oils, and solvents; and if they are impervious to corrosive fumes.

Plastic sheets are being used to some extent in lining tanks and in forming protective hoods, baffles, and ducts. These sheets are, at times, plain plastics such as shown in the illustration, but often they are laminates made up of layers of plastic and cloth (or paper). Special cements can often be used in joining the sheets.

The variety of plastics that can be used is so large that all those available should be studied to determine which is best for a particular use and which represents the best money value.

It would seem that the forward-looking plant will turn more and more to consideration of plastics for use under severe conditions. The war, while restricting the wide-spread use of plastics for civilian commercial purposes, has rapidly advanced this industry.

The small laboratory batches of a few years ago are now being made in thousands of pounds. In addition, there is a host of new developments, many of them still in the embryonic stage.

Rayon, Nylon, Fiberglas Entering NEW FIELDS

Continued from page 103

lent processes are available here (such as the T.B.L.) which are not being exploited commercially to the degree in which they might.

P. D. ATWOOD, *Nylon Division, E. I. du Pont de Nemours & Co., Wilmington, Del.*—

Success in weaving and finishing nylon fabrics has been due largely to an exchange of ideas between weaver and finisher and to an understanding of the characteristics of the yarn.

An outstanding characteristic of nylon is its elasticity. It is necessary that "the throwster or weaver uses absolutely minimum tension and controls the uniformity of each position as though he were dealing with a 'rubber' thread. Warp streaks, filling barre, and non-uniform selvage tension are typical conditions which can be created by disregard of this basic property of elasticity."

Residual shrinkage of nylon will range from 8 to 11%. This shrinkage will offset fabric construction and must be taken into account as must any phases of twisting, sizing, warping, or quilling that might offset this residual. "The use, therefore, of a twist-set yarn with residual shrinkage in the range of 4% alongside of non-twist-set yarn from another throwster containing about 6% shrinkage will certainly result in warp streaks, filling width variables from quill to quill, puckering, and in general a worthless piece of fabric. If, on the other hand, yarns of different shrinkage characteristics are deliberately introduced into the fabric construction, some novel and useful results can be obtained."

The high strength of nylon currently causes some trouble, since individual filaments are so strong that in weaving they will not permit entangled warp ends to break apart. "Further development along the line of finer denier per filament nylon yarn will undoubtedly minimize the filament-strength effect and result in a better weaving yarn than is now available." But even today weaving efficiencies are around 95% for fabrics ranging in weight from 0.75 oz. per sq. yd. to 19 oz.

In finishing nylon fabrics, the fact that nylon is subject to setting must be taken into consideration. "An unset fabric must not be allowed to wrinkle during the boil-off, because the wrinkles will be permanently set unless they are removed by subsequent and more drastic setting procedure."

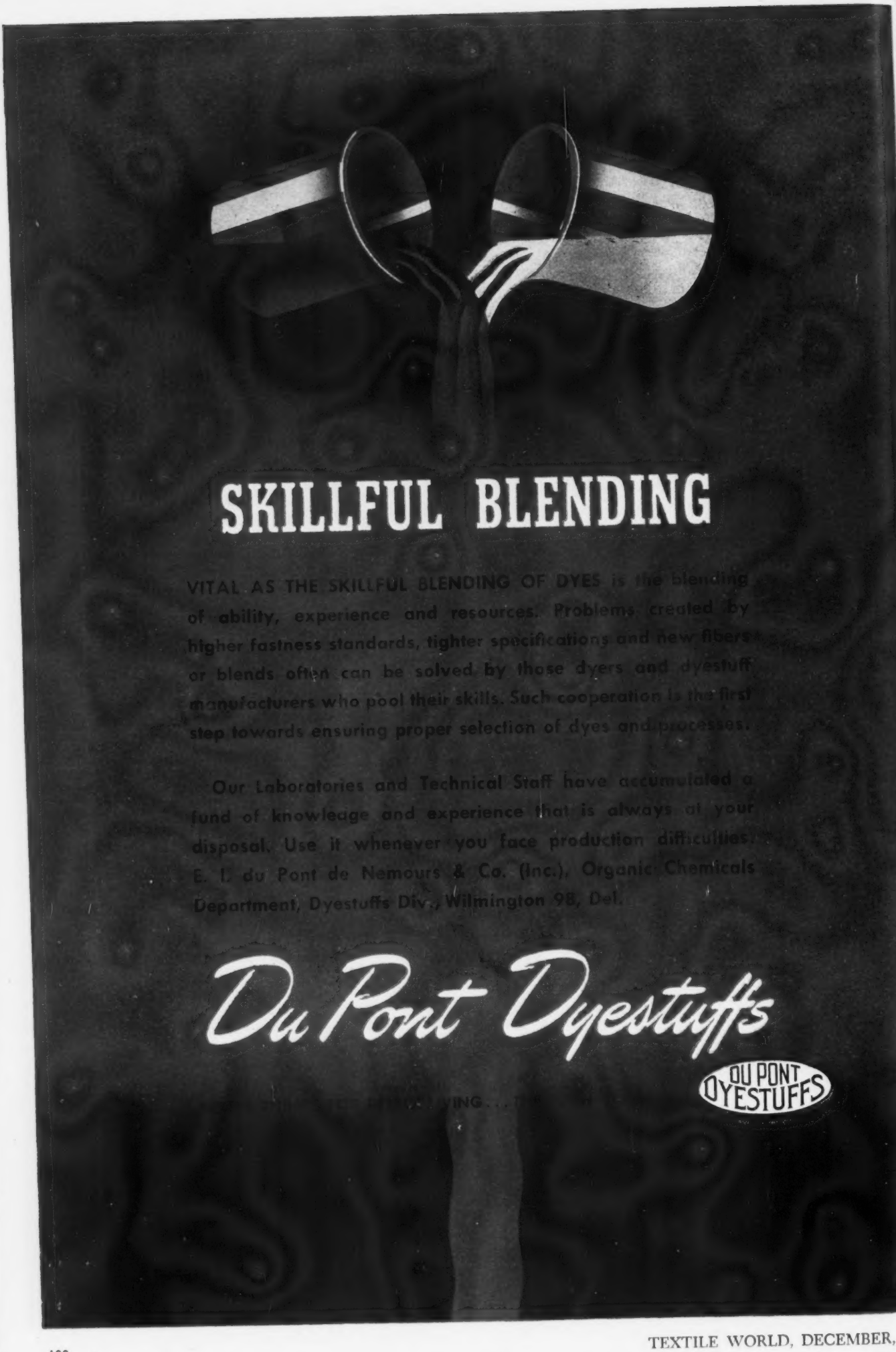
"Every manufacturer using nylon should study the setting of his product from two angles:

"1. What yarn setting will do to improve the efficiency of his manufacturing operations.

"2. What setting can do to insure a more satisfactory finished product from a customer standpoint."

One of the latest developments in setting nylon cloth is called dry heat finishing. An experimental machine has been used to prove that this kind of setting is practical, and it is ready to be developed in a commercial scale.

"Such a method might be developed on a practical scale and be more adaptable to commercial finishing of certain fabrics than steam setting. The advantages over the steam method are improvement in hand, drape and resilience."


SKILLFUL BLENDING
VITAL AS THE SKILLFUL BLENDING OF DYES is the blending of ability, experience and resources. Problems created by higher fastness standards, tighter specifications and new fibers or blends often can be solved by those dyers and dyestuff manufacturers who pool their skills. Such cooperation is the first step towards ensuring proper selection of dyes and processes.
Our Laboratories and Technical Staff have accumulated a fund of knowledge and experience that is always at your disposal. Use it whenever you face production difficulties. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyestuffs Div., Wilmington 98, Del.
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BLENDED WOOLENS—
Fiber Diameter Considered

HIGHLIGHTS: Newer Synthetic Fibers Cause Specks in Blended Fabrics—Heather Mixes Have Bright Colors Mixed and Then Blended With Base Color.

By FRED SYKES

BLENDING is defined in the dictionary as: "To mix together . . . so that separate things mixed, or the line of demarcation, cannot be distinguished."

The above definition is applicable to the carded woolen industry.

Microscopic tests will indicate the diameter of the fiber, chemical tests will give the percentage of animal and vegetable matter, but no test has yet been devised to tell whether a wool fiber is new wool, garnetted threads, noils, or fiber from reprocessed or reused wool.

Wool fiber does not lose its identity even if that fiber has been used several times. The fiber becomes shorter, but the basic structure is the same. Take the most felted piece of cloth and repick it into fiber again, and you will find under microscopic test some of the serrations have been damaged, but most will show no damage at all.

The bright colors in a heather mix are first mixed together and then blended with the base color to obtain coloration in the final blend.

BLENDED FABRICS. Since the outbreak of the war, blending of woolen fabrics has become more wide-spread than previously, owing to the restrictions on the use of pulled fleece wool, and the restrictions on dyestuffs.

Most manufacturers in the carded woolen industry found that they had to use more ingenuity than ever before in the history of the woolen industry. The Wool Labeling Act and the use of the new terms, "reprocessed and reused wool," are also partly responsible for this condition.

A few years ago the writer remembers very distinctly that we had only shoddy, cotton, silk, and wool to work with. The shoddy was made out of either new clips or woolen rags. There were no such fibers as acetate and viscose rayons, Aralac, and nylon to contend with in the blends. Most of the troubles in those days were with the cotton and silk threads mixed in woolen fabrics.

Cotton could be removed easily by carbonizing. Where only small amounts of cotton were present, it could be handled by speck dyeing. Silk offered greater difficulty.

Today, with all the new fibers, it is becoming increasingly difficult to make a blended piece of material without running into a number of difficulties, mostly from specks, in trying to produce a well-balanced piece of material that is acceptable to the ultimate consumer.

Rayon blended fabrics, at the present, are the most popular as the rayon has very good carrying qualities, and makes a better appearance in the finished fabric than most fibers.

More latitude for blending fibers of different lengths is offered by the woolen division than by the worsted division. But, the more uniform the length of the fibers blended together, the more even will be the resulting yarn. The type of fabric that is being produced will also influence fiber length selected.

SHODDY MIXES. If a fabric is being produced with a large percentage of shoddy, and the only use of wool is for carrying qualities, it is advisable to have the diameter of the fibers closely related. Take for an illustration a blend of 40% wool and 60% shoddy.

If the shoddy is about a 3/8s grade, the wool should be the same grade to get the best possible results for an even yarn. The same principle is true for blending noils, shoddy, and wool. However, there are times when uniformity of fiber diameter is impossible.

On certain fabrics the above statement covering fiber diameter cannot apply, and one may have to blend fiber of different diameters. The most practical way to blend these fibers is to pick the wool first to loosen it. It will blend easier. Or, if you have a blend of wool and shoddy, and the wool is of a small percentage, it is advisable to mix equal amounts of wool and shoddy, and run through the picker first. Be sure to oil this blend on the first run. Then you have a larger mix to blend with the shoddy. This insures an even blend; it is not liable to separate.

HEATHER MIXES. The same principle is used when making heather mixes because in most mixes a solid color comprises the greater percentage and the brighter colors are in smaller percentages. Manufacturers who make this type of mix always combine the different colors together, and then blend them with the base color.

These statements covering mixing are easily checked in the card room. If you have short, fine stock and long, coarse fiber blended together, the carder has to set his fancies closer to the cylinder to raise the short stock from the cylinder. The closer he has to set the fancies, the more fly he will have, and this dulls the cylinder. Further to illustrate the difference, consider ring doffers. The top ring always takes the best stock and the bottom doffer the shorter stock.

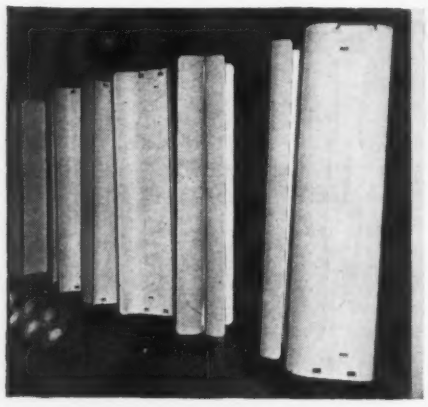
Much trouble has been encountered in the finishing department with uneven width in fulling caused by mixing tops and bottoms from the card room.

It is unfortunate that the picking department in most mills is sadly neglected. If the stock is not thoroughly blended you cannot expect an even yarn and a good finished product.

SYLVANIA NEWS
TEXTILE EDITION

DECEMBER *Published in the Interests of Better Sight and Sound* 1944

Plastic Finish for Reflectors Proves Tops in Efficiency



Sylvania reflectors coated with plastic finish emerging from a part of curing process.

After extensive study of fluorescent fixture reflector coatings, Sylvania has standardized on a plastic finish of exceptional hardness, flexibility, and light reflecting efficiency. This finish—*not* an ordinary paint—is produced by the polymerization, under a unique heat treatment, of different molecules to form a new chemical compound.

This plastic finish has proved far superior to paint in its resistance to moisture and corrosive vapors. It is more flexible than vitreous enamels, and withstands distortion and bending more successfully.

DID YOU KNOW...

That Sylvania Near Ultra-Violet Lamps are used to illuminate the fluorescent dials on airplane instrument panels? By using proper filters, pilots can adjust the brightness of the dials.

* * *

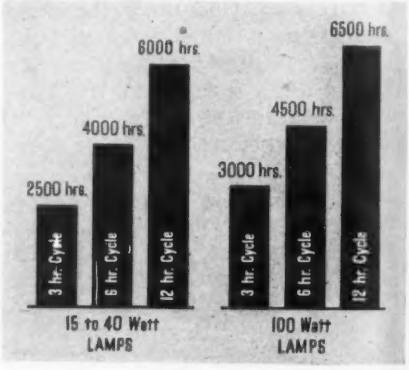
That one of the possible postwar applications of television is in the inspection of inaccessible parts or hazardous processes? Inspection can be carried on at a point remote from the actual material.

Sylvania Lamp Life Ratings Newly Defined for Long Time-on Cycles

Lower Estimated Costs Foreseen for Many Practical Operating Conditions

A more exact definition of the life ratings of Sylvania Fluorescent Lamps, based on a longer cycle of operation, indicates that in many industrial applications lamp life may be considerably greater than would have been expected under previously published ratings. Plants considering installations of Sylvania Fluorescent Lighting will frequently find that these new ratings permit substantially reduced estimates of the probable over-all cost of fluorescent, placing this illumination in an even more favorable cost position.

Heretofore, the life ratings of Sylvania Fluorescents have been based on a 3-hour cycle; that is, on turning the lamp on and off every 3 hours.



Comparative life ratings of Sylvania Fluorescent Lamps for burning cycle times of 3, 6 and 12 hours, showing effect of longer time-on cycles.

In actual industrial plant practice, lights remain on for much longer periods than 3 hours. This longer time-on cycle is reflected in increased life expectancy.

Ratings have therefore been determined for 6-hour and 12-hour cycles, which are more often encountered under practical conditions. As shown in the graph, these cycles permit much more favorable life estimates. For instance a 40-watt lamp burning 8 hours a day, 5 days a week (the normal peacetime work-week) is rated to last approximately 2 years.

BLACKLIGHT LAMP HELPS SORT YARN

Yarns which closely resemble each other in physical appearance under ordinary illumination—such as acetate and cellulose yarns—can be quickly and easily sorted by exposing them to the radiation from Sylvania Blacklight Lamps. These lamps provide Near Ultra-Violet radiation, under which the yarns glow differently.

Blacklight Lamps are described in detail in Sylvania's recently issued Special Electronic Products Booklet. Copies of this booklet—which also lists many other tubes and lamps for special industrial applications—may be obtained free of charge from Sylvania.

"It's that coal mine again. Sylvania Fluorescents boosted output so much in their office, they want to know if we have anything for the miners' caps!"

SYLVANIA ELECTRIC PRODUCTS INC.
Salem, Massachusetts

MAKERS OF FLUORESCENT LAMPS, FIXTURES, ACCESSORIES, INCANDESCENT LAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES

STA Devotes Meeting to Specialized MAINTENANCE

HIGHLIGHTS: Dan River Production Supervisors Relieved of Machine Upkeep and Change—Maintenance Men More Efficient Because of Specialization—Shops Play Large Part in Program—Principles Can Be Applied to Smaller Plants—Lubrication Program Essential.

SPECIALIZED MAINTENANCE can apply to the small mill as well as the large one, Raymond E. Henderson, of Riverside & Dan River Cotton Mills told the Piedmont section of the Southern Textile Association during its meeting last month at Belmont, N. C. Details of the specialized maintenance program in the carding and spinning departments were given by C. C. Elliott, head of the maintenance department at the Dan River Mills. To illustrate the organization of the maintenance department and its relation to the production supervisors, Mr. Henderson drew the chart seen in Fig. 1.

The chart shows the lines of authority for the production and maintenance departments. Note that the weaving maintenance program is under a specialized superintendent in the weaving department.

FUNCTIONING. Maintenance personnel handle the work of changing frames, inspection for causes of ends-down, etc. This work formerly was done by section men under production supervision. Section men were transferred from the production department to the maintenance department and given additional training to do highly specialized work.

Now the production supervisors devote full time to matters of production, quality, and personnel; and all mechanical work is handled for them by the maintenance organization. The maintenance organization is entirely a service organization and, as such, is required to keep the machinery in good running order for the production organization.

Differences that arise as to the ways of handling a job are settled between foremen directly affected in both production and maintenance departments or are taken up the line of organization authority for a decision. Differences between production departments as to standards of work or settings are threshed out in conferences, with the majority ruling.

"The maintenance superintendent," said Mr. Henderson, "must be the type of person that can get along with the production personnel. He cannot be arbitrary."

As to specialized maintenance in the smaller mill, Mr. Henderson said, "You have to do more combining in a small mill. I was superintendent of a small mill in Georgia at one time. You cannot have one man look after

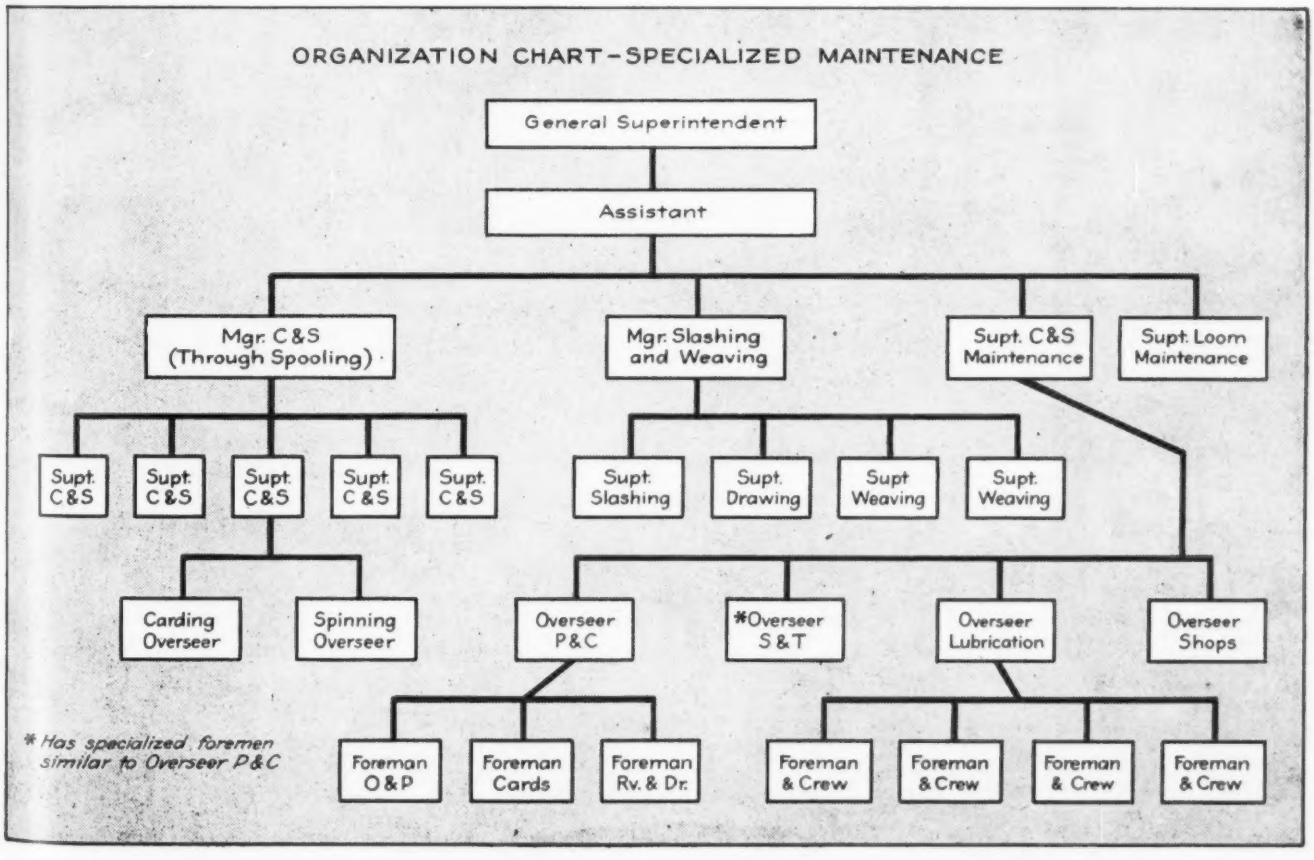


Fig. 1. Organization of production and special maintenance crews at Riverside & Dan River Cotton Mills.

Season's Greetings

IN a year when the blessings of Victory and Peace are cherished beyond measure, Christmas assumes a fuller and more compelling significance not only to us who are at home — but more especially to our loved ones in the Armed Services throughout the world.

As the New Year dawns, we hopefully look forward to a world at peace in which man can again contribute and receive the blessings so richly deserved by his labors. We of the Arkansas Company pledge ourselves anew to work harmoniously with our fellow men to the end that we may be worthy members of the World of Tomorrow.

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rolls all the time, for instance, because that would not keep him busy. He might look after rolls and belting and some other specialized jobs. It takes a little ingenuity, but it can be worked out and can be done just as well. You will find that you will change it as you go along; you make changes and adjustments. From my experience, I think it can be applied in any mill, large or small."

SPECIALIZED JOBS. In his talk before the association, Mr. Elliott gave the following details as to the operation of his various departments:

Work in the card room is done by trained specialists such as overhaulers, maintenance men, card clothiers, comber men, drawing men, and slubber men. In the spinning room there is a specialized crew of overhaulers and spindle plumbers who completely overhaul, clean steel rolls, and align spinning and twisting frames once every twelve months on a definite-schedule basis. Another crew of steel-roller cleaners follows the overhauling crew six months after overhauling.

A spinning-maintenance man in each spinning room checks the entire frame. He goes over six to eight frames daily and inspects each machine at intervals of 45 to 50 days. On his first round, he stops the frame and checks parts at the top of the frame. On the second round he checks parts lower down. On the third round he checks idler pulleys and parts near the floor. He rides a small truck to save time and increase efficiency, and he carries his tools in pockets of a small apron he wears so that each tool is readily available. To keep this man working at his highest skill, a boy brings supplies to him. A record is turned in by the maintenance man showing his findings on the frames inspected and the parts used on frames that are overhauled.

Two spinning-frame men check a spinner's sides each day and go over each frame at intervals of 90 days. The spinner marks the ring rail wherever an end comes down, and it is the duty of these men to find the cause. This has reduced ends-down by 15%.

Specialized cylinder men, steel-roller men, belt men, and pulley men are also used.

TOOLS AND EQUIPMENT. Adequate tools and equipment such as portable work benches on wheels, vises, drill presses, hand drills, grinding wheels, modern aligning and leveling sets, and precision gages are provided. Forms are furnished so the mechanic can report work done and supplies used on the various machines.

AUXILIARY MAINTENANCE SHOPS AND WORK DONE

ROLLER SHOP

Covers and buffs all card- and spinning-room rolls.
Covers and repairs all scavenger rolls.
Covers all clearers.
Gages and inspects long-draft spinning aprons.

LEATHER AND BINDER SHOP

Covers and polishes all loom binders and box plates.
Builds loom pick bumpers.
Repairs and recorks all friction disks and clutches.
Repairs all cork pulley faces.
Cut revolving-clearer cloth aprons.

INSPECTION SHOP

Inspects all spinning and twister bolsters.
Inspects and straightens all spinning spindles.
Inspects all pulleys and change gears.
Repoints spinning and twisting spindles.
Packs and ships all spindles for repair.

INSTRUMENT AND COUNTER SHOP

Repairs all hank, pick, and yardage clocks.
Repairs all mechanical roller pickers.
Repairs and services Foxwell guides, and electric fans.
Rebuilds Barber-Colman cheese cores.
Installs traveller cleaners in spinning-ring holders.
Does experimental work.

HARNESS, REED, AND BAND SHOP

Repairs, cleans, polishes and stores all reeds.
Repairs and builds loom harness.
Manufacture all spinning bands.

BOBBIN INSPECTION SHOP

Inspects all new bobbins and quills.
Inspects all carding and spinning bobbins once a year.
Paints bobbins that pass inspection. (By machine)

SALVAGE SHOP

Inspects and cleans all broken and worn parts.
Repairs salvaged parts and returns them to stores.
Sells all scrap metal, boxes, barrels, etc.
Cleans looms crankshafts to be metalized by machine shop.
Builds cleaning mops.
Cleans and stores exchangeable machine parts.

Fig. 2. These auxiliary shops are under direction of the maintenance department at Dan River. They work with the maintenance crews in specialized tasks.

Daily and weekly reports of the work done by each man are made on mimeographed forms and turned into the maintenance office. Valuable knowledge of weak points of various kinds of machinery is accumulated by these records and permits various defects to be overcome.

SPECIALIZED LUBRICATION. Without adequate lubrication, a specialized maintenance system is of little value. In the Dan River program there are specialized overseers, under the maintenance superintendent, who are responsible for the lubrication of the machinery. This relieves the production and manufacturing management of all this responsibility. Before this system was put into operation, oilers were put on many jobs such as laying up roving, running errands, and many other jobs instead of oiling machinery. The lubrication specialist directs, schedules, and supervises all oiling and the type of lubricant used on each machine. It was found that before the program was begun, many of the bearings were replaced for lack of lubrication, and many of the machines had no oil lines. Pipe-line extensions were provided for oil holes and the caps were painted yellow so that they could be quickly found.

Service auxiliary shops are under the direction of the maintenance department. The work assigned to each shop is shown in Fig. 2.

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if **you have a general distribution and want an analysis of the kind and number of outlets for your product in terms of size or geographic location . . .**

if **you are planning to improve your product and would like an analysis of the consumer's expectations after the war . . .**

...our Research Division may be able to help you not only in collecting specific data that you may need, but (in the process) clarifying your own ideas of your merchandising, your competition, your opportunities and objectives.

The Research Division of John A. Cairns & Company is equipped to collect and interpret information relating to any aspect of the textile or apparel field. Typical of the jobs we have done recently are a survey on Men's Shirtings, with special reference to grey goods mill—converter relation; a survey of the Dress Industry from a piece goods viewpoint; and a survey of brand identification in work clothing.

The Division is headed by Ben Klein, who, for 25 years, was associated with the Fairchild Publications. Among his contributions to textile and fashion research was the men's Summer Clothing Survey for Men's Wear which for 10 years pointed out the trends in terms of volume, price and style movements. His surveys on men's shirts, men's shoes, women's dresses, fur garments, coats and suits and other lines were invaluable to retailers and manufacturers alike in conducting a forward-looking and profitable business.

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STA Meetings Reveal Much TECHNICAL DATA

HIGHLIGHTS: Sandwich Method of Blending Rayon Recommended—Fingers Can Prevent Split Laps—Trend to More Soluble Size in Slashing—Loom Spreaders Allow Speed Increase.

BLENDING RAYON STAPLE, slasher-roll coverings, and weaving problems were among the pertinent technical subjects discussed at two November meetings of the Southern Textile Association. Technical information presented is abstracted here.

Processing Rayon on the Cotton System

By HEATH O. KENNETTE, E. I. du Pont de Nemours & Co., Inc., in paper read before Eastern Carolina Section of STA, at Durham, N. C., last month.

Because rayon staple has the ability to blend readily with all known textile fibers, it offers unlimited possibilities in fabric development. The development of spun-rayon fabrics has been largely that of creating new and interesting blended yarns rather than novelty fabric constructions.

In general, if a crisp resilient fabric is desired, the coarser deniers such as 3 and 5.5 den. would be blended with wool in a yarn construction using relatively high twist. If a medium-soft fabric is desired, 1.5 den. staple spun with a relatively low twist will generally be employed. If strength or fine yarns are of paramount importance, the finer deniers such as 1.0 and 1.25 of medium-high tenacity would be used. It is often necessary to inject a small percentage of the fine deniers in the blends employing coarse deniers in order to obtain satisfactory spinning and processing properties.

OPENING, BLENDING, TINTING. Because of the great variation in cotton-mill machinery in the trade, almost every mill has developed its own blending techniques. The type of fabric being produced governs to a large extent the method of blending.

The majority of fabrics produced from blends of natural and synthetic fibers require maximum uniformity of fiber distribution in order to bring out the desired effect in the fabric. The safest method of blending natural and synthetic fibers that we know is based on the sandwich method.

The tinted staple should be allowed to dry and condition for 12 to 24 hr. before processing on the picker. Excessive quantities of tint or wet tinted areas result in excessive fiber breakage, neps, loading of the card, roller wraps, and poor drafting.

PICKERS. Every effort should be made to produce a lap with the greatest possible degree of uniformity throughout its entire length.

Many millions of pounds of rayon in 100% form and in blends with other fibers have been processed successfully on both the conventional and the one-process picker, without major changes.

The Kirschner-type beater is the one in most general use. Care and judgment must be used in setting the Kirschner-type beater to the feed rolls. If the beater is set too close, excessive neps and fiber breakage will be encountered. When picking from evener pedals, it is generally necessary to use $\frac{1}{8}$-in. to $\frac{3}{16}$-in. wider settings than when picking from feed rolls. In most cases a beater-to-evener-pedal setting of $\frac{1}{2}$ in. will give satisfactory results. Small feed rolls often give trouble with roller wraps, particularly when processing tinted stock containing small wet areas or high concentrations of tint. The speed of the beater is governed to a large extent by local conditions, but generally is in the range of 800 to 1000 r.p.m. The fan speed should be sufficient to pull the stock to the top screen and usually ranges from 1200 to 1600 r.p.m.

A set of lap-split-preventer fingers should be provided for both top and bottom surfaces of the lap. With fingers set $\frac{1}{16}$ in. to $\frac{1}{8}$ in. from the bite of the calender rolls, virtually all lap splitting can be eliminated. Experience has shown that the entire mill should be equipped with adequate humidification capable of maintaining 55% to 65% r.h.

CARDING. So long as the card is sharp and is in good condition, very little trouble will be encountered in changing over to rayon staple. Normal card settings, screens, and clothing used on a good grade of cotton usually work equally well on 1½-in. rayon.

The main problems which have been encountered with rayon staple during carding have been lap splitting, loading of the lickerin and cylinder, web sagging or breaking, and excessive neps. All these problems have been materially influenced by lack of adequate humidification, dull cards, and wet or excessively tinted areas in the staple. Loading of the lickerin generally can be minimized by reducing the speed from 425 to a range of 200 to 300 r.p.m. Web sagging or breaking can usually be eliminated by adjusting the comb and tension gear.

DRAWING. Few major problems have been encountered at the drawing frames. However, many problems in subsequent operations have been traced to excessive drawing tensions, improper roller settings, and poor mechanical condition of the drawing frames. The general tendency has been to set the rollers too close which results in non-uniform sliver. Roller settings of $\frac{1}{4}$ in., $\frac{3}{8}$ in., and $\frac{1}{2}$ in., over the staple length (front, middle, and back rollers, respectively) work satisfactorily on many blends. Judgment should be used in selecting the trumpet size in order to avoid stretching or calendering of the stock. The speeds, drafts, and production normal to long-staple cotton are generally used on rayon staple.

The cushioned-type top rollers appear to give results superior to metallic top rollers. When using long-length staple, large-diameter rollers (1¾ in.) are preferred because of less roller wraps and better running.

ROVING FRAMES. Rayon staple in 100% form and in blends with other fibers has been used successfully on both conventional three-process roving and on the one-process long-draft equipment. Care and judgment must be used in selecting the draft, roller settings, twist, lay, tension, and spindle speed to suit the fiber blend and hank roving to be produced.

A few years ago some of the mills

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installed long-draft roving frames designed to handle 1½-in. to 2-in. staple. The results from these frames were so encouraging that the machinery manufacturers then built long-draft roving frames, with large-diameter front rollers, designed to handle from 1½-in. up to 3-in. staple.

SPINNING FRAMES. Because the back rollers on the conventional spinning frames are non-adjustable and are set at less than the normal fiber length of the rayon staple used, the floating middle top roller (Washburn roller) is generally used on this type of spinning frame. Most of the problems at the spinning frame with rayon staple can be traced to processing troubles encountered earlier in the operations. Drafts, speeds, and productions normal to cotton are generally used on rayon staple.

Because of the better fiber control obtained during drafting on the long-draft frame, the resultant yarns are generally more uniform and approximately 10% stronger than similar yarns made from the same roving on the conventional spinning frames. However, the standard long-draft cotton spinning frame is not so flexible as the old conventional spinning frame and requires considerable rebuilding to handle up to 2-in. staple lengths.

All new machinery designed especially to handle rayon staple from 1½ up to 3 in. in length, either in 100% or in blends with other fibers, employs the long-draft principle in some form. A number of small installations of these frames have been in use several years, and the results have been very satisfactory.

SPOOLING THROUGH WEAVING. Most of the problems encountered with spun rayon during spooling, twisting and warping are related to the quality of the yarn supplied by the spinner.

All types of slashers are used in the sizing of spun-rayon yarns. Most mills agree that slashing stretch should be held down as low as possible and should not go much over 1½%. The general trend in the past few years has been toward a starch or gum-base size because of lower cost.

Rayon staple, like continuous-filament rayon yarn, is subject to variation in humidity and tension; and, for this reason, the same precautions should be observed. More trouble is experienced with shedding or fly from spun rayon than from continuous-filament rayon. This is one of the problems which the size manufacturers are trying to overcome. If the yarn is properly constructed and a good slashing job is done, no major problems should be experienced provided, of course, the loom is in good condition.

Speeds and Setting for Rayon Staple Blends

Discussion led by V. E. McDOWELL, Rosemary Mfg. Co., at the November meeting of the Eastern Carolina Section of the STA.

One system described for making blends of rayon staple with other fibers consists of preparing laps of 100% rayon fiber and of blending on a finisher picker. When one-process pickers are used, the sandwich method of blending prior to picking is recommended. Another system, designed especially for a large mill on rayon-cotton suitings, consists of a three hoppers in line, one after another, through which a sandwich blend of the fibers is passed. After being thoroughly blended in this unit, the stock is fed directly to special one-process pickers. This blending and picking unit is separate from the cotton machinery.

On the use of a vertical opener in the line of rayon-staple blending machinery, one mill man said that with normal lengths of 1.5 den. the fiber is curled, but that the opener seemed to work better on longer lengths. As to the use of a vertical opener of the jacket type, he thought it would cause trouble. Mr. McDowell said that he had read of a mill that is running stock through a vertical beater after having put a jacket around the beater and that this mill did not experience any difficulty. On the picker the spiked apron picks up the rayon better and enables the stock to process more evenly.

On blends of rayon, cotton, and wool, one mill man explained, the wool shrinks more than the cotton and rayon. By weighing the wool carefully, having it cut evenly, and by cutting it $\frac{1}{32}$ in. longer than the cotton and the rayon, little trouble will be experienced. He explained that he had run such a mixture for 3½ yr., using a floor blend.

PICKERS. One mill man had cut his picker-beater speeds considerably and expressed the belief that beater speeds are related to the amount of rayon put through.

Mr. Kennette gave a specific set up on a picker as follows: A 52-yd., 14.3-oz. lap with a running time of 6.3 min.; Kirschner-type beater speed, 1015 r.p.m.; fan speed, 1170 r.p.m.; feed roll, $2\frac{15}{16}$ in. in diameter set $\frac{3}{8}$ in. ($\frac{1}{2}$ in. preferred) to the evener pedal. The same settings and speeds are run on the finisher. The grids have normal grid bars closed up so air cannot get through. This set up is for two beaters on the breaker picker and one on the finisher on 1.5-den. rayon staple. On the one-process picker the lap weight would run between 12.0 and

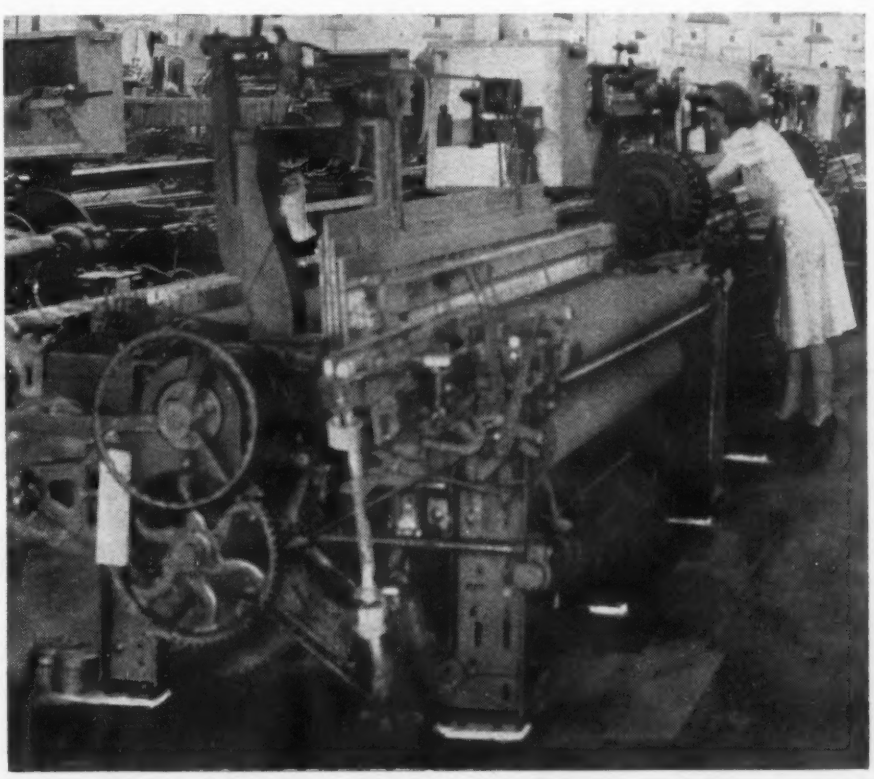

Fig. 1. Opinions of STA members varied as to effectiveness of loom pads.

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15.5 oz. Blade beaters seem to give more neps.

Another mill man explained that at his mill rayon was fed into the breaker picker hopper by hand, since present equipment had to be used. The two Kirschner beaters were slowed down to 840 r.p.m. and the entire picker was slowed down in proportion. The first blade beater was by-passed. No trouble was experienced with laps splitting. The lap was made in about 6 min. where formerly it was made in 4¾ min. Length of lap is 61 yd. and weight of lap is 41 lb.

As to control of tensions, the weight on the lap lever that controls the pressure on the lap pin is generally about a third that used for cotton, according to Mr. Kennette. If the weight on the calender rolls is not reduced, unopened fibers are likely to be crushed or pulverized.

Mr. McDowell explained that he has run some rayon at the same speeds as cotton (1200 r.p.m. on the first section, 1050 on the second, and 800 on the third), with no difficulty and with practically no waste. "I have not found any particular difficulty in running rayon on the straight cotton system—I think probably a lot of our cotton systems will run rayon when we think they will not," he said.

CARDS. One member explained that on cards he had run a cylinder speed of 172 r.p.m. with a doffer speed depending on the blend used. With a high percentage of wool, the doffer speed is kept down to 9 r.p.m. On the straight blend of 1.5 den., this was increased to 11 r.p.m. Doffer setting was 7; lickerin setting, 8; feed plate setting, 29; and mote knives, 14, back and front. Cards were run three shifts and stripped by vacuum once a shift. Control of tension between doffer and calender rolls was found to be important.

Another member told of his experience in running a blend of 25% cotton and 75% dyed rayon. He had no trouble at the card but opened the feed plate to 22. The rayon stock was opened thoroughly before dyeing by running it through a bale breaker and vertical opener. In fact, it was run through the whole gyrating equipment: bale breaker, opening picker, and picker. The staple was blended in the finisher picker.

In carding, a cylinder speed of 185 r.p.m. was used, with the whole card speeded up in proportion. A 13.2-oz. lap was formed and carding production was 14 lb. per hr. Cards were ground every 10 days.

When rayon staple was first run, flat speeds, according to Mr. Kennette, were slowed down to as low as 1½ to 2 in. per min. The next move was reversing the flats. Now most mills are running normal cotton speeds on the flats and are taking out strips, which are worked up into special or novelty yarns.

One mill's settings on 100% 1.5-den, 1½-in. staple were given as these: cylinder speed, 165 r.p.m.; doffer speed, 13 r.p.m.; and production, 17 lb. per hr. A 13-oz. lap was made in 6 min.

DRAWING. Using conventional two-process drawing for 1 9/16-in. 3-den. rayon staple, one mill runs a front-roll speed of 365 r.p.m. Roll settings are 1½-in., first to second; 1⅞-in., third to fourth. Cork-top rolls 1⅜-in. in diameter are used.

Mr. McDowell explained how roll settings on a Saco-Pettee frame with metallic rolls could be increased by taking off the clearer stand and moving it back. By doing this, varying center-to-center settings can be secured for 1½-in. staple as follows: first and second rolls, 1¾ in; second to third, 1⅞ in.; third to fourth, 2 in.

FLY FRAMES. Fly-frame settings in one mill for 1.50-hank roving using 1⅜-in. staple were given as follows:

Rehiring of Returning Servicemen

By W. C. BYRD, Lt. Comdr. USNR, in talk before the November meeting of Weavers' Section of the South Carolina division of STA.

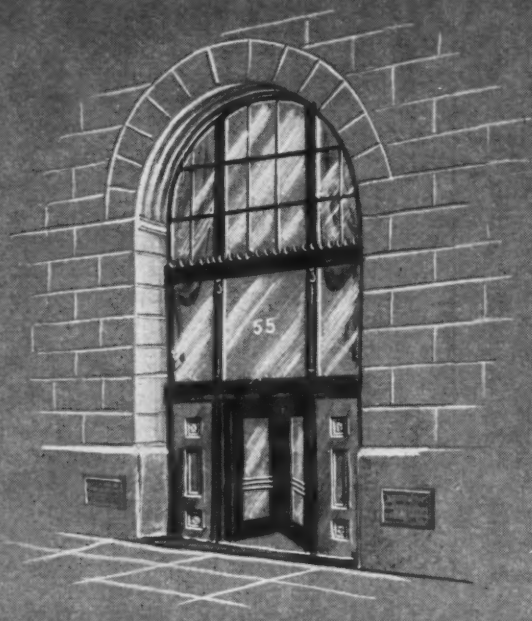
UNDER SECTION 8 of the Selective Training and Service Act, the veteran is entitled to his former position with like seniority, status, and pay, if he comes within the following provisions. (1) The veteran was in the employ of a private employer. (2) The position which he left was not a temporary position. (3) He left such position since May 1, 1940, for the purpose of entering the armed services. (4) He completed satisfactorily his period of training or services in the armed forces. He must present his former employer with a certificate of satisfactory service in the armed forces. He must have an honorable discharge. (5) He must be still qualified to perform the duties of the position to which he seeks reinstatement. (6) He must make application for reinstatement within 40 days after his release from duty.

At the present time an act has been passed by the lower house of Congress extending that period to 90 days, and very likely that will be passed by the Senate.

The law requires that a veteran must be reinstated to his former position or a position of like seniority, status, and pay. After he has been reinstated in his former position or one of like seniority and pay, he must be considered to have been on furlough or leave of absence during the period he served in the armed forces. He is entitled to participate in insurance and other benefits offered by the employer according to established rates and customs prevailing at the time he left the service of his employer, and he may not be discharged without cause within a year.

"It is obvious that sometimes disputes will arise between a returning veteran and his employer. You must remember that there will be some of these men coming back that have been through very severe fighting. Their nerves will have been affected; not that their minds will be off, but they will have to be adjusted to civilian life, and every consideration will have to be shown them."

Upon failure of an employer to reinstate a man in his former position or give him a like position, that man has a right under law to institute suit in the Federal Court to obtain his rights.



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front-roll speed, 147 r.p.m.; twist multiple, 0.85; roll settings, ⅛ and 1⅛ in. Synthetic rolls were used. Another mill on 2.85-hank roving used a twist of 2.20 and a front-roll speed of 121 r.p.m. Still another mill making 1.50-hank roving from a 60-gr. sliver using a 1.10 twist multiple had a front-roll speed of 210 r.p.m. Leather rolls were used with roll settings of 1⅞ in., back; and 2 1/16 in., front. This mill used a 205 r.p.m. front-roll speed for 1.10-hank roving with a 0.90 twist multiple.

SPINNING. One mill with Whitin spinning used a front-roll speed of 126 on a 20s yarn with a 3.50 twist multiple and no change in roll settings. Another mill making a 10s yarn from 1.00-hank roving on a Whitin frame used settings as follows: 210 r.p.m. front-roll speed; 2¼-in. ring; 8-in. stroke; 3.20 twist multiple; 1 7/16-in. cork top roll; 1¾-in. roll settings. On conventional draft (H&B) this mill made a 40s yarn with a front-roll speed of 104 r.p.m., 5.00-hank roving, and a 2½-in. roll setting, back to front.

CARD SPEEDS. One member stated that he ran a card cylinder speed of 185 r.p.m. on cotton and increased everything in proportion. Waste and cleanliness of stock were about the same as before speeding up. He also tried 198 r.p.m. without noticing any damage.

Mr. Dunlap, of N. C. State Textile School, was called upon for card speeds, and he stated that one mill has run 200 r.p.m. since October, 1941. He found 185 r.p.m. to be the most popular speed. Results are comparable to those secured at 165 r.p.m. Cards must be in good condition to stand the higher speeds. In one mill, he said that a new card installed by the manufacturer was set up to run 185 r.p.m.

Technical Discussion on Slashing and Weaving

Led by FRANK D. LOCKMAN, JR., asst. superintendent, Brandon Corp., at the November meeting of the weavers section of the S. C. division of the STA at Clemson.

Cotton slasher blankets made of heavy cotton yarns were in use by one large mill, were found to be very satisfactory, and resulted in a saving over wool blankets of $500 per slasher per year. From 5- to 15-yd. lengths of this cotton blanket are used, slightly more than with wool. By bleaching the blanket a better cushion is secured, and by cleaning the blanket once each shift, good slashing is maintained. No trimming of the ends is required as is the case with wool blankets.

A Dayco synthetic roll for slashers has been tried out on the finisher roll by one mill since last March. On that particular roll, about 1500 ends of 20s are being satisfactorily slashed. It was necessary to add weight to the roll to get proper squeezing. The roll weight was about 400 lb. originally and 1100 lb. when weighted. Some slight cracks have been observed on the ends, but they do not affect the operation; and the life of the rolls can probably be prolonged by grinding. No wear was observed when running

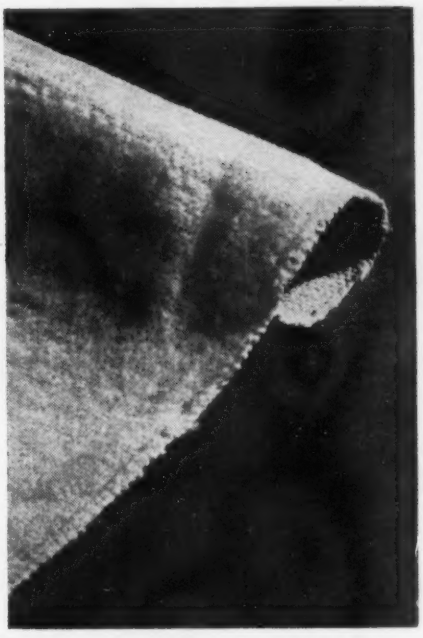

Fig. 2. Cotton slasher blankets are credited by one mill with saving $500 per slasher per year.

2-ply selvage after weight was added to the roll. There was considerable wear before.

Cost of covering the roll, which is approximately 6-in. in diameter and 57-in. long, with a ⅛-in. synthetic coating was in the neighborhood of $120. The cost will vary with roll dimensions and thickness and type of coating. Another roll has been ordered with a 1-in. coating of a softer material which is expected to make it possible to do away with the weights.

In using the heavily weighted roll, no additional power consumption was noted and no difference could be found as to size variation over normal roll covering material.

The life of the roll is unknown, but it has averaged 110 to 120 hr. of operation per wk. since March, and it appears to be good for several more months' operation. If the roll is removed and resurfaced without destroying the cushion, it possibly could be run for two years.

LOOM SHOCK ABSORBERS. Opinions differed as to the effectiveness of shock absorbers under looms for reducing vibration in the building. One mill man said that absorbers helped but did not solve a supply problem caused from vibration. Another member stated that his mill had tried looms with cushions. Eventually the mill was braced from the outside and loom speeds were staggered to cut down vibration. With a standard loom speed of 220 picks per min., the staggering was done by dropping to as low as 194 p.p.m. while some looms were run at 224 p.p.m. The average speed was maintained.

One superintendent said he had looms in one plant that moved as much as 2 in. back and forth with the lay, and that he had reduced the vibration and steadied the loom greatly by using shock absorbers. His mill is now putting in additional pads and finds it will not be necessary to lay a new floor.

WEEK-END HUMIDITY. One man said that his mill maintains 80° temperature and 60 r.h. to prevent shedding on Monday morning. The filling is conditioned and kept in the weave room over the week end.

On gauze and other light-sley goods, several mill men reported they had tried both one and two ends per dent. One mill man had gone back from 2 to 1 per dent, because with the former the cloth did not look as good due to ends grouping together.

LOOM SPREADERS About 8% increase in loom speeds was reported by using spreaders or braces for E-model looms. The increase in supplies was not great and no difference in the amount of castings used was observed. More fixing is required, but it is not due to breakage and would not increase as rapidly as the loom speed. Looms reported were not overhauled when the spreaders were put on. The loom speed is 177½ p.p.m., and the same efficiency was claimed as at the lower speed.

Mr. Brice, of Draper Corp., said that some 15 yr. ago Draper introduced the idea of a top girt on R-model looms on duck. Later a top girt was put on the wider width of the X-model looms, and from 1934 on the girts were put on all X-model looms. There is no question, he said, that top girts add to the efficiency. Draper now has a spreader which is adapted to E-model looms.

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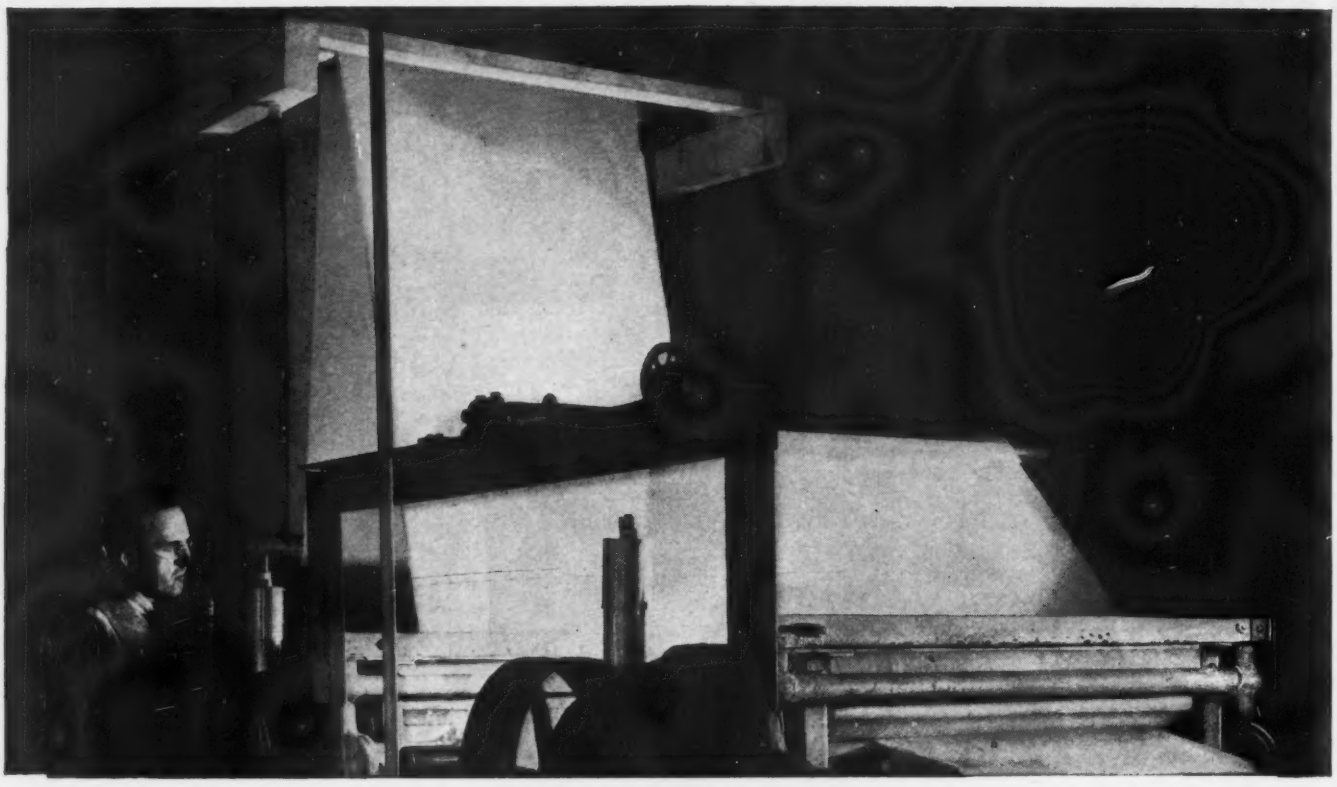

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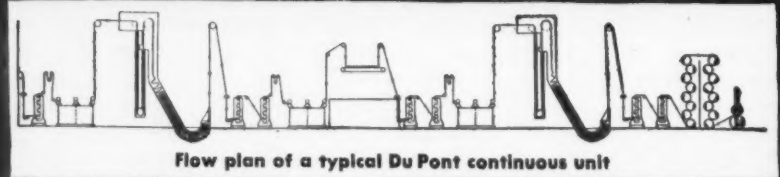
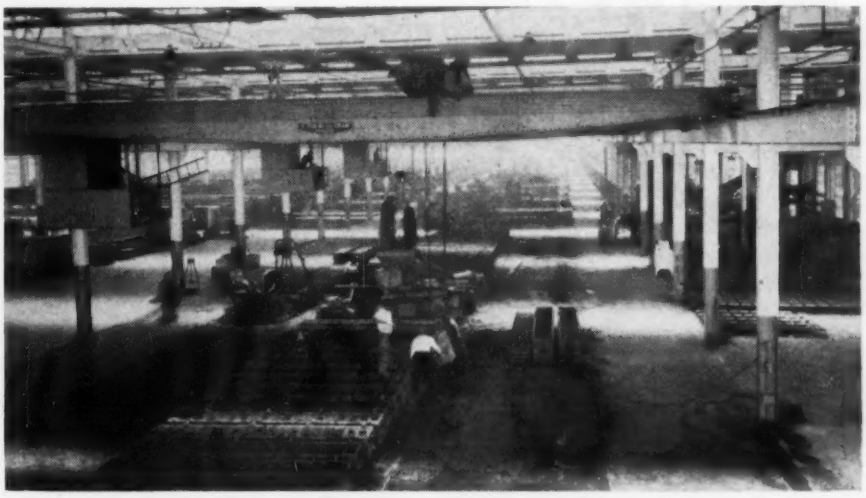


Flow plan of a typical Du Pont continuous unit

Washington Sees Need for TEXTILE MACHINES

HIGHLIGHTS: Domestic Mills Offer 3- to 5-Year Backlog of Demand—Foreign Mills Seek American Equipment, but Export Business May Prove Temporary—Progress Hampered by Price Ceilings and Parts Scarcity.

By GLADYS MONTGOMERY
Washington Editor, TEXTILE WORLD



Textile-machine shops have been exceedingly busy on war work and have won recognition for "an outstandingly fine job." *Textile Machine Works*

SURVEYS OF textile-industry requirements at home and abroad have led government planners to the conclusion that there is a compelling urgency for speedy reconversion of the textile-machinery industry. Like many other basic industries, of course, it is recognized that the speed of reconversion for textile machinery is keyed to the tempo of V-E Day and the needs of the armed services. But the urgency revealed by factual studies has led to broad-scale consideration of what can be done to help in laying the groundwork for reconversion before V-E Day actually arrives. Present indications point to completion of principal war contracts by the end of the first quarter of 1945; but, if necessary, some of this war business could be turned over to companies that do not play such a vital role in the normal economy. Difficult problems that are actually operating or calculating to operate as a drag on the speed of reconversion must be considered.

Broadly speaking, the reasons advanced for need of rapid reconversion pertain to obsolescence and depreciation of a substantial amount of machinery now in use, large backlog of orders, and the needs of foreign mills.

BUILDERS ON WAR WORK. At the outbreak of the war, the textile-machinery industry converted rapidly to war production. That it has done an outstandingly fine job is agreed on all sides. At the height of the war output, the dollar-value production in this industry reached the point where 60% was war work* and 40% was textile accessories, parts, and machinery. Of this 40%, it is significant that 34% of production was accessories and parts; and only 6%, textile machinery. As the percentage of war needs began to diminish in 1944, the average went to about 50% war production and 50% textile machinery and parts, of which 35% was accessories and parts and about 15% was machinery. The industry had an overall total dollar-value production for 1944 of $225,000,000. The trend now is rapidly moving away from war work and toward textile-machinery production.

Already there is a three- to five-year backlog of demand for textile machinery because the manufacturers have been engaged otherwise. In looking at present needs, there are those who feel that it would have been wiser to have placed some of the war orders elsewhere.

FOREIGN DEMAND. In addition to the requirements of our own textile mills, some planners in Washington believe that speedy reconversion is desirable to enable the machine-building industry to supply foreign customers. For example, heretofore, Latin America, Canada, and Australia purchased their textile machinery largely from Europe. This source of supply is now cut off. Large-scale orders in the account of such countries are going begging and with cash on the line. The government is definitely interested in this element because of the goodwill potentiality it involves for America.

Representatives of foreign countries are now in this country trying to place orders. It is known that representatives from Egypt and India are ready to make purchases but cannot get the delivery dates that they need. With no ceilings on textiles in most countries, and with a dearth of textiles, it is easy for manufacturers in these countries to sell, at exceptional prices, whatever amount of goods can be produced. Syria, for example is reported to be getting fabulous prices for yarns to be employed on home looms. Profits far exceed those of normal times; hence the scramble for textile machinery.

Some Washington officials see this demand as destined to last only a few years, believing it will end as soon as prices of finished textiles become more competitive and when Great Britain is able to supply markets. In this connection, reports are reaching Washington that British textile-machinery manufacturers are already taking orders with no date set for delivery, and are getting substantial deposits on such orders. It is said that 15% deposits have been made on recent orders taken in India—some reports even placing

* War work has included production of gun turrets, gyroscope parts for submarines, airplane magnetos and other parts, torpedo parts including valves and nose and scoop assemblies, ammunition, 20mm projectile, machine tools, tool parts, etc.

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vise from the standpoint of U.S. manufacturers.

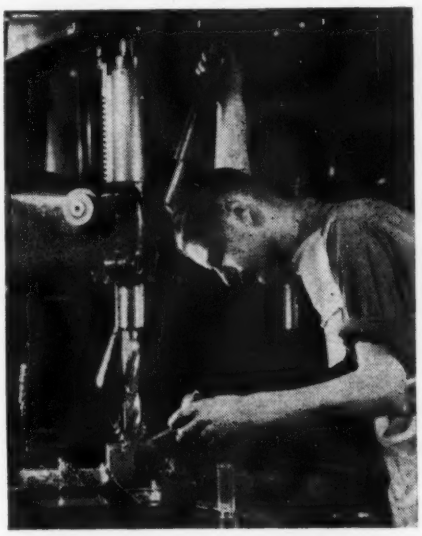
ENGLAND'S PLANS. Textile manufacturers may encounter difficulties and delays in getting dollar exchange in some countries. For example, India must transfer funds to pay for her purchases through a pool operating in London, and each order must be passed upon in London. According to an unofficial spokesman, the British owe India over 3 billion dollars—approximately 750 million pounds sterling—which is the balance due for goods supplied by India to England. At present England is in no position to supply India's needs for textile machinery; but certainly as soon as she can get into sufficient production to export textile machinery, she is not going to want this country to take over dominion markets. As for South America, for example, the situation is different, since South American countries have a substantial balance in their favor to pay us for purchases in dollars.

As for used machinery, there has been already a thorough combing over of the available supply by Latin-American countries. It is known that they have taken machinery which normally they wouldn't look at.

The question is being asked as to whether preference for orders will be given to the domestic or foreign markets. The hope is expressed here that early production will be split fairly between the two markets, taking into consideration the business the companies did in each field before the war and also the most urgent needs. Conceivably, there could be some pressure exerted by the State Department to supply devastated countries with the necessary textile machinery, but this might be in the nature of urgent requests rather than orders. Foreign Economic Administration, according to present reports, contemplates entering into export transactions only for strategic purposes. There is said to be some jockeying between State Department, FEA, and WPB on the advisability of using the MM rating band where it is deemed necessary for such purposes. Such a plan may be dropped. Since the machine builders have cooperated so well with the government in the recent past, it is hoped that it will be unnecessary to allocate the output of textile machinery.

THREE OBSTACLES. Principal obstacles to reconversion do not lie in lack of opportunities for the machine builders, but rather in the three factors already mentioned—dissatisfaction with OPA price ceilings, manpower troubles, and the difficulty in getting certain component parts.

It can be definitely stated that OPA plans to keep textile machinery under price ceilings but at the same time to use mechanisms to adjust maximum prices where sufficient justification can be shown. To relieve textile machinery of price ceilings altogether, contends OPA, would mean that manufacturers of components would be entitled to the same degree of relief. From this broad premise, OPA proceeds to point out special factors in the textile-machinery situation that would make the removal of controls dangerous at this time. For example, it emphasizes that in a market with the backlog of demand which now exists, such a procedure might well affect the price of end products. It would cause uncertainty as to prices, speculation, com-



Manpower shortage is acute in textile-machine shops.

plaints on the part of buyers who themselves remain under ceilings, and tremendous pressure upon the ceilings of raw materials sold to manufacturers of textile machinery.

OPA recognizes that machinery prices which were accepted as generally fair and equitable on Oct. 1, 1941, the base date for establishment of maximum prices in this industry under MPR 136 as amended, might not remain so with changing conditions and changing costs and factors beyond the control of OPA. Therefore, standards were set up for making price adjustments both for relief of individual companies and for an entire industry. In the case of textile machinery, OPA prefers to make adjustments on an individual or group basis rather than industry-wise, since no one set of conditions affects all producers in the same way. Recently, industry committees were asked which method was preferred by the industry, but there was no unanimity of opinion. Where individual adjustment is made, the standard use is to bring the price up to manufacturing cost, total unit cost or total cost plus a moderate profit, depending upon the current overall profit position of the applicant relative to a prewar base period.

OPA PROCEDURE. The machinery industry finds itself suddenly faced with problems of price adjustments, because the tendency had been to let overall profits from war work take care of diminishing profits from textile machinery as a result of the higher production costs. The question is how to get authorization to establish new maximum prices to take care of the rising costs of production, OPA has already granted adjustments to some producers of essential machinery and stands ready to continue this policy, providing the manufacturer can show that undue hardship exists because of conformity to the regulations of price control. This means filing application with OPA for price adjustments.

When the machine builders argue that the cost data information required by OPA is so detailed and involved as to discourage initiative within the industry, the government agency points out that usually it is the companies with poor accounting systems which run into difficulties. It contends that prices cannot be set intelligently without sufficient cost data. The policy of OPA is to make requirements for information reasonable and to set prices at such levels as to encourage maximum production.

A second factor which is retarding all-out reconversion of the textile-machinery industry is found in the universal manpower problem. The industry has indicated a shortage of 4,000 to 5,000 men, of which 1,200 are foundry workers. With the diminishing war work, there should be a pool of workers available which will help to relieve the shortage. Reports show 22,000 workers in the industry in 1939 and 30,000 workers in 1944. That means possibly 8,000 workers can be shifted from war contracts to the manufacture of textile machinery.

It is understood that WPB stands ready to help the industry take care of urgent needs for basic materials and components which are necessary to set up production schedules. Critical components include fractional-horsepower motors, bearings, castings, and drive chains. However, manufacturers must continue to file for their controlled materials with the Controlled Materials Plan Branch of WPB.

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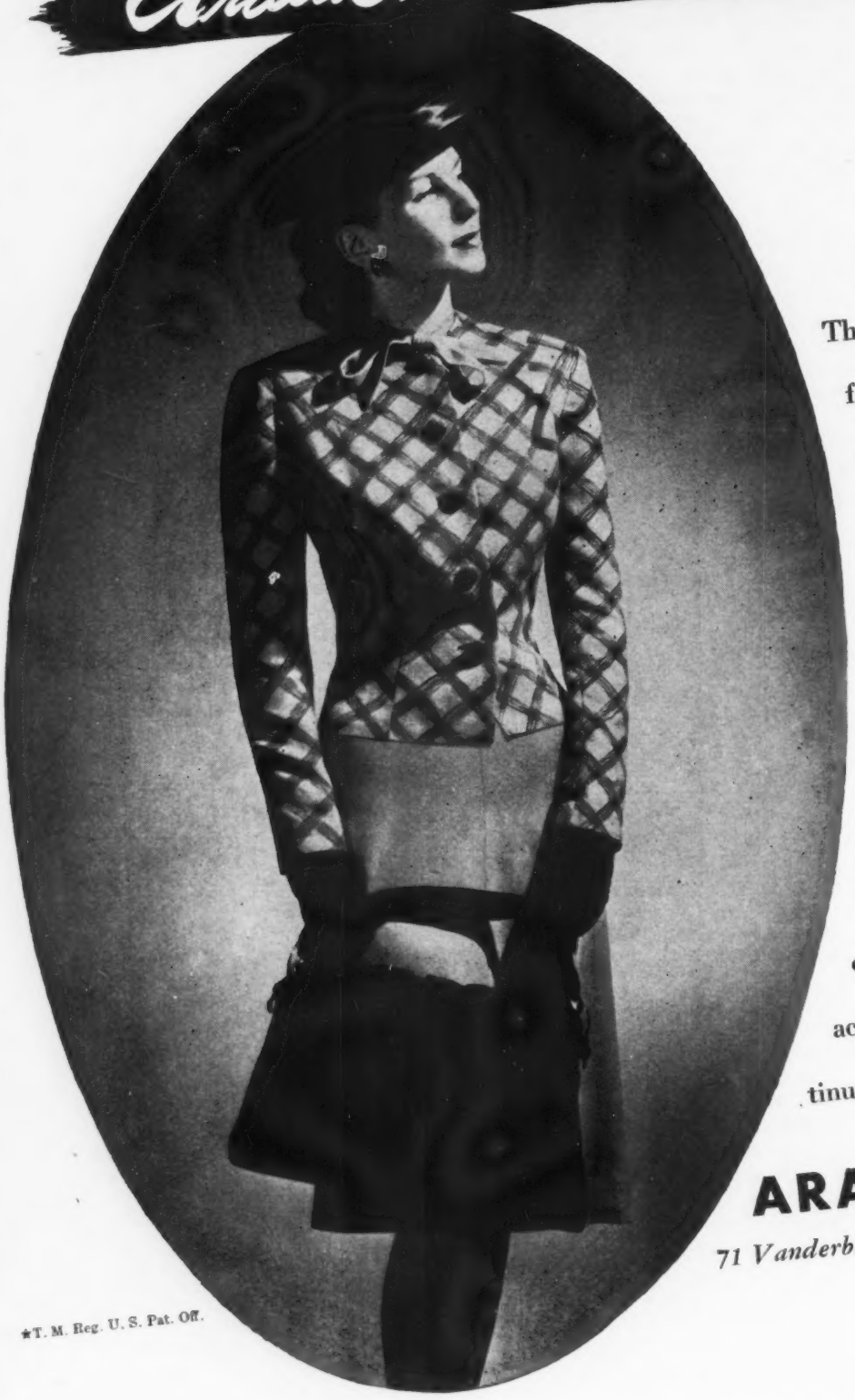

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Meetings OF THE MONTH

Urges Unity of Action In Cotton Industry

Cotton-Textile Institute

Unity of action for the cotton-textile industry as a whole was stressed by Herman Cone, chairman of the board of the Cotton-Textile Institute, at its annual meeting in New York on Nov. 17.

"It is clearly the purpose of the Institute," he said, "to serve all its divisions, territorially or otherwise, with equal interest and absolute impartiality. It is our doctrine that the industry, in its major overall policies, should act in complete unity. We expect to establish permanent standing committees, assign to each committee carefully defined functions and a definite procedure of action. It is intended that every committee be a working committee."

In a future which holds many knotty problems, Dr. C. T. Murchison, president of the institute, sees the cotton-textile industry as the most fortunate of all the major manufacturing industries in the matter of reconversion and the prospect for business volume.

"The shock of transition from war to peace," he said, "will for us not be too severe. In fact, the outlook for continued production at high levels is exceedingly bright. We are assured by the Army Service Forces that no let-up will occur in the military requirements for cotton goods until after the war in the Pacific is over or approximately so. After the termination of all hostilities there is bound to be for the period of rehabilitation a heavy foreign demand for American cotton goods."

Over the long pull, Dr. Murchison said, the major factor in the future of cotton is the technological factor, despite the apparent importance at present of the price factor.

Brig Gen. David N. Hauseman, of Army Service Forces, spoke on contract termination and stressed pretermination planning. The first step, he said, is a setting up by each company of its own procedure, preferrably under a company vice-president; the second is an informal understanding between the company and its contracting officer on what to do with inventory; the final step is formal agreement on the part of the Army as to the various elements, such as stop-work points, storage of surplus, rate of profit, settlement expenses, etc. He stressed planning today and not tomorrow on termination but emphasized that production was still the industry's No. 1 job.

Government action as the most important factor in cotton's immediate future was stressed by Prof. G. W. Hoffman, of University of Pennsylvania, and farmers have found out that their income is surer and larger by relying on the government rather than on open market. However the speaker indicated preference for the return of full open competition under self-imposed regulation. Price relationship as determining whether cotton, or burlap, or paper is used in bag manufacture was analyzed by H. P. Claussen, of Bemis Bros. Bag Co. To hold cotton as the important bagging material, he said, there must also be development of automatic bagging machinery which will give same output per man-hour as is now possible with paper.

Fuller Callaway, Jr., president of Callaway Mills, was elected chairman of the Institute for the coming year to succeed Herman Cone.

Promotes Welfare of Textile Industry

Textile Research Institute

"We all have a common aim," said F. S. Blanchard, president of Textile Research Institute at the annual meeting in New York, Nov. 10, "to promote the welfare of the textile industry through research." The meeting brought to a focus the three major branches of the Institute's activities—applied research, economic research, and fundamental research.

Prof. Elliot B. Grover reported in the cotton carding project and listed tentative conclusions including such observations as: Considerable increases in card production per unit are feasible without detrimental effects on quality; neppiness is affected more by raw-material condition than by changes within the card; waste removal can be controlled to a limited extent to allow high productions without serious deterioration in quality of the product; peak power demand charges are not increased by the use of high over-all card speed.

For the radiant drying investigation, Dr. R. H. Wilhelm reported that studies so far indicated that (1) the course of drying has been found to be closely similar in radiant and air-convection drying; (2) that a stream of room-temperature air passed over the material being dried by radiant heat does not materially decrease the rate of drying but does lower the temperature of the work appreciably; (3) strong evidence has been gathered that radiant energy may penetrate a considerable distance into thick textile materials giving a rise in temperature in the interior greater than at the surface. Prof. Edward Shinn reported on the rayon warp sizing project.

Giles E. Hopkins, director of applied research, reported on the over-all program, listing other projects as follows: creep, varnished insulation, static in mills, and moisture equilibria in fibers.

Seasoned economic thought will be turned on the industry's problems, under the guidance of D. G. Woolf. The project heads up to Dr. A. M. McIsaac, of Princeton, who outlined the principal subjects including demand for textiles, foreign markets, labor, machinery, textile materials, financing, marketing and distribution, migration of the industry, etc. Reports and analyses will be issued as the project progresses.

Dr. F. M. Feiker, speaking on post-war trends in textile education, said that the army had been *training* men, not *educating* them, that great steps have been taken in visual training of men for jobs, but that the need still remained for educating men for leadership in the industry.

Dr. Gustavus J. Esselen stressed the industry's opportunity for rebirth. "Research once started should be a permanent program," he said. "The effect is lost if it is discontinued."

Dr. Robt. E. Rose, chairman of the fundamental research committee,

How Today's Wartime Experience is Developing Better Fabrics for the Future

FOR THE FIFTH TIME in their history, Cheney Brothers are now engrossed in meeting urgent military demands. Consequently, the production of Cheney fabrics for civilian use is limited.

Nevertheless the textile industry will soon benefit from this wartime experience. For all through the war period, Cheney Brothers have worked in the engineering and scientific development of new fabrics. These fabrics are made from all kinds of fibers and combinations of fibers—carefully selected with the specific end use in mind.

For instance, nylon—fine as it is—may not be as satisfactory in some instances as a combination of rayon and cotton. Or perhaps the best result can be obtained from nylon combined with some other fiber. In any case, Cheney Brothers' long textile experience and superb laboratory facilities enable them to produce the best possible fabric for the particular purpose.

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in comparing a research organization with a living organism outlined the three necessary parts: the stomach, the body, the brain. "Research needs a full stomach," he said. "Funds must be provided as the first requirement in establishing an organization. The second requirement is a laboratory, physical and chemical; and finally the rare combination of brains and imagination."

Officers were reelected as follows: Fessenden S. Blanchard, president and executive secretary; Douglas G. Woolf, first vice-president; Robert E. Rose and Harold DeWitt Smith, vice-presidents; Edward T. Pickard, treasurer.

Sees Better Employee Relations Postwar

N. C. Cotton Manufacturers Assn.

Manufacturers must develop the points of view which will foster good relations between employer and employee, according to Dr. Geo. D. Heaton, of Charlotte, who spoke before the 38th annual meeting of the North Carolina Cotton Manufacturers Association at Charlotte, Nov. 11. Improved working conditions, he explained, better personnel administration, and attention to foremen selection and training will become increasingly important in the postwar era.

Dr. C. T. Murchison told the association that the new export subsidy on cotton would soon be in effect. Foreign competition in cotton goods, which is likely to arise from the low price at which foreign mills can buy this cotton, can probably be handled by imposing an excise tax on imported cotton goods. This tax will have to be tied to the export subsidy and fluctuate with it.

President R. A. Spaugh, Jr., in reviewing the work of the assocation, said that absenteeism had become increasingly important, necessitating strenuous efforts to reduce the loss of time from this cause. Wage increases and higher costs of all materials used by mills have made operations increasingly difficult; and yet, as these situations have developed, the industry has strained every nerve to meet the production quotas required. Mr. Spaugh called attention to the statement made by the Unemployment Compensation Commission that North Carolina employers will save close to $2,000,000 in unemployment taxes this year.

Officers and directors elected for the new year are as follows: J. A. Moore, Edenton, N. C., president; R. L. Harris, Roxboro, N. C., 1st vice-president; R. D. Hall, Belmont, N. C., 2nd vice-president.

Carders, Check Your COTTON

(*Contd from* page 83)

to select approximately the same amount of fibers for each break tested, so that the force required to break fibers can be closely compared to the force applied to break other specimens.

UNIFORMITY OF FIBER LENGTH. Uniformity is generally treated as a property of classified length, but it is actually a factor of cotton character. Different cotton samples of the same classified length may show wide variations in uniformity of fiber length. The proportion of fibers that are shorter than the classified length may differ greatly, and the average or mean length of all fibers in a staple specimen may show large variations.

Fiber arrays made with fiber sorters show graphically how these mean fiber lengths can vary. This mean-length value is a better indicator than classified length of the potential yarn strength of any cotton. Comb-type fiber sorters and other similar means of measuring mean length values take too much time for each determination to be of much value to the classer in his routine work of classing a large number of bales.

A practical method of estimating approximate length uniformity can be used by taking the stapling specimen after it has been measured for classified length. This is held by one end between left thumb and first finger. The other end of specimen is grasped to a depth of about ⅛ in. between right thumb and first finger. The fibers thus held in the right hand are drawn out from the body of the fibers held in the left hand. This process is repeated until all the fibers have been removed from the specimen.

By noting the length of fibers drawn off by the right hand and how rapidly the length decreases as successive groups of fibers are removed, a close estimation of the relative amount of long and short fibers in a drawn specimen can be secured. A little practice will prove that variation in uniformity can be detected and that length values can be appraised.

The degrees of uniformity can be defined as very uniform, normal, and "wasty." Most cotton will be found to be of normal uniformity. The government forms for length can be used as standards for normal cotton. A few exceptional varieties or types will be found to be entitled to the designation "very uniform." "Wasty" cotton should be avoided, as it increases waste losses, causes poorly running work, and results in lower yarn strength in the product.

NEPPINESS. Neppiness is usually considered as an incidental property of preparation. It goes much deeper than this surface smoothness as indicated by standard forms for grade and preparation.

Extreme neppiness in cotton may indicate one or more of three things: faulty ginning practice, a greater natural tendency in the cotton to form neps during processing, or the fact that the cotton actually contained an abnormal number of neps before the ginning process.

Whatever the cause, neppy cotton should be avoided if good yarn and cloth appearance are essential. The highest nep-removing efficiency (about 85%) that can be expected from a cotton card at medium production on normal cotton will make a yarn of poor appearance.

Folded cotton samples, when held for comparison up to standard boxes, may show a slight surface stringiness and rough ginning; but this examination is not deep enough to expose internal condition of neppiness. Actual nep counts are simple, precise, and fairly rapid to make; but it is impractical to make these on every bale classed. Counts from several parts of bale would have to be made for them to be truly representative of the entire bale.

In the classing of cotton there are two good opportunities to judge quickly and closely the degree of neppiness present in samples of cotton—viz., when the cotton is broken to judge "body" and again (and this permits a closer examination) when the fibers are drawn from the sample to form a staple specimen. Comparisons can be made with government forms for length or any other established normal sample.

Only three gradations are necessary for practical use in classing to describe the degree of neppiness. These are neppy, normal, and clear. Extreme degrees can be expressed by the prefix "very"—e.g., very neppy.

These classing-room approximations of the four important factors of cotton character are not intended as a substitution for the more precise laboratory determinations. They are intended rather as a supplement and a confirmation of the truth of these measurements. Selected mixes should occasionally be followed through the processes, the finished yarn examined for appearance and tested for strength, and the results compared with recorded estimated cotton-quality factors for check.

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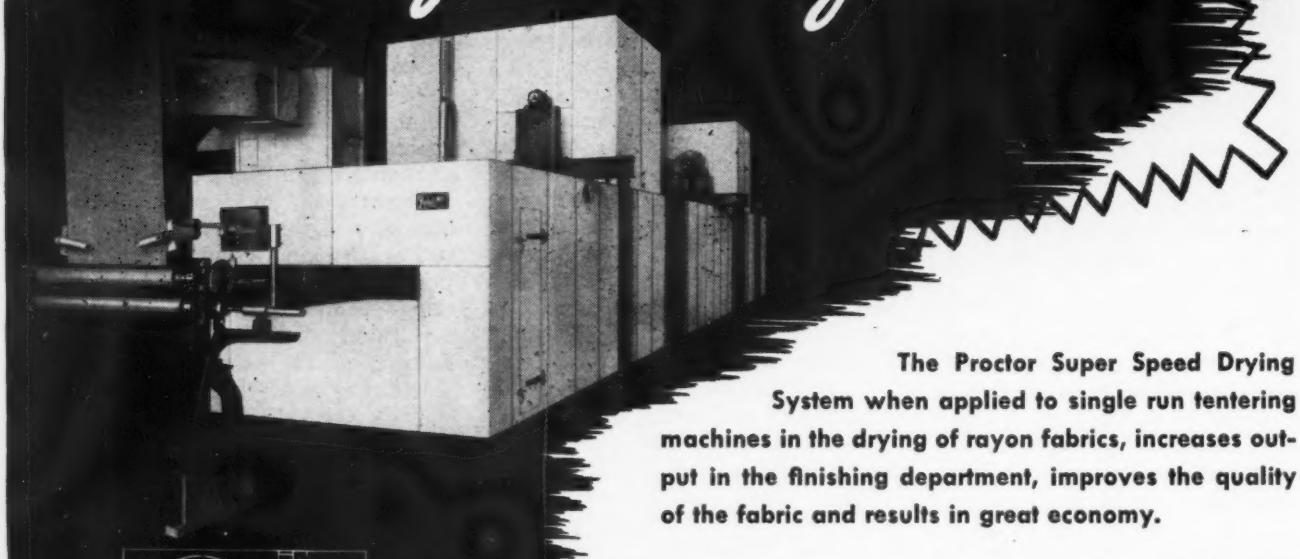

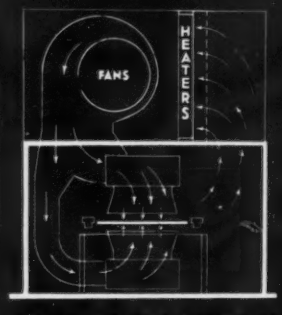

Cross section illustrates location of heaters, fans and method of air circulation.

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Loomfixers' MANUAL

WOOL SECTION — Chapter XXVIII (Cont.)

AUTOMATIC FILLING MOTION———By Eugene P. Schremp

IMPORTANCE OF PROPERLY WOUND filling bobbins cannot be overstressed. A bunch or reserve of yarn equal to four times the reed length of the loom should be wound at the butt of the bobbin. When the filling is nearly depleted the filling detector will indicate for a transfer, but there must be a sufficient reserve of filling yarn to permit the shuttle to go to the opposite side of the loom and return for transfer of the full bobbin.

Broken picks may result when the filling runs out before the shuttle comes in to the box-end for a transfer. Broken picks, caused by this condition, will be on the right side of the loom and usually are only a few inches long because the filling stop-motion will stop the loom immediately. The loom will also stop when the filling is depleted; then the weaver will change the bobbin by hand.

Bobbin clips should be properly centered so that the bobbin will be parallel with the shuttle wall. If the bobbin is not centered the filling will usually break and may cause broken picks in the fabric. When a clip becomes off center it should be removed from the shuttle and either bent into its proper shape or a new one installed. Most loomfixers make a practice of removing the eyes and clip from a worn or broken shuttle and keeping a few of these on hand.

COLOR INDICATOR MOTION. The proper color or the right kind of filling is transferred in a prearranged pattern by means of a color indicator motion. Woolen and worsted looms usually have a four-cell magazine so that yarns of four colors or of four different kinds may be used. If the fabric has only one color of filling it is not a good practice to run the loom on one shuttle. Unless the filling is absolutely even in shade, twist, and size, every bobbin change will leave a filling streak. The best method is to run the loom with two shuttles, using three or four shuttles only if absolutely necessary. There are attachments by which all four cells may be used when the loom is running with only two shuttles. The advantage claimed is that the weaver may fill all four cells in the magazine. These will then operate for a longer period of time without being replenished. Advantage is more apparent when used on coarse, low-count woolen or worsted filling.

When starting a new warp which calls for more shuttles or colors in a loom that has been running, the color motion should be checked to make sure that it is operating properly. A motion may be slightly out of adjustment and still work with two shuttles, but when more shuttles are added, it may not transfer the proper bobbin unless it is adjusted properly. When filling colors are almost the same, wrong colored bobbins may run for some time without being detected.

The color-indicator motion connections used on W-2 and W-3 looms are shown in Fig. W42. On the older type of looms the wire connector is inside the loom frame. When the harnesses are being hooked, care should be taken not to lean on the wire, as a bent wire connector will throw the color-motion out of adjustment. There are two points of adjustment; namely, a stud in the slotted end of the color-indicator lever and a turnbuckle in the vertical connector. The sweep of the angle lever which operates the indicator finger on the magazine can be increased by raising the stud and decreased by lowering it. The total length is changed by adjusting the turnbuckle.

Adjust the color motion by having the adjustable stud of the color-indicator lever in the center of the slot. In this way the sweep can be increased or decreased. It is good practice on all loom adjustments where sweep is concerned to start with the adjustment in the middle. The collar on the end of the sliding rod should be checked, making certain that the head of the setscrew does not come in contact with the back magazine support when it turns.

Adjust the turnbuckle so there is ¼-in. clearance between the collar and the frame of the magazine with No. 1 shuttle box down. Loosen the setscrews in the indicator-finger lever and adjust so that the projection is directly under No. 1 upright side. Turn the loom head-motion and check the finger with each change of the shuttle box. If the indicator finger goes too far or not far enough, then the sweep should be adjusted by moving the adjustable stud of the color-indicator lever. The position must be checked with each shuttle box. The color motion works in the same sequence as the shuttle box.

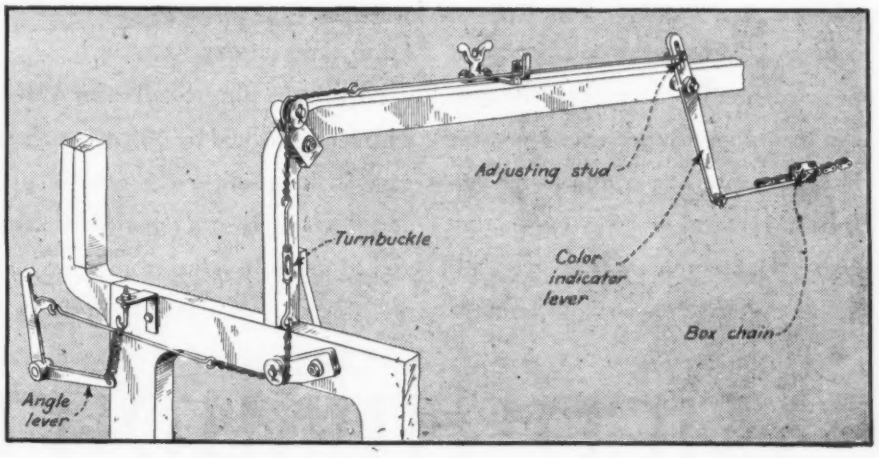

Fig. W42. Color indicator motion as used on the W-2 and W-3 looms.

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EVERY month brings announcements of new textile machines and redesign of old ones. The requirements of greater speeds and new fibers are being met by machinery builders.

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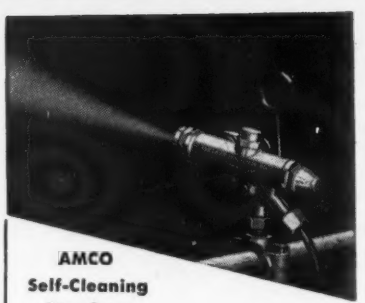

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FIXING Hosiery MACHINES

CIRCULAR MACHINES — Chapter XXIII

THE FIXER'S TOOLS———By Julian W. Hughes

OFTEN the best fixers of circular hosiery machines have the fewest tools rather than a large assortment, as might be expected. The tool chest of the best fixer this writer ever knew consisted of two screw drivers, medium and small size; one adjustable end wrench; one flat file; a pair of side-cutting pliers; a pair of needle pliers; a ball peen hammer; and an ordinary pocket knife. In addition to these essential tools, the fixer carried two special oil cans, a 2-in. oil brush, and a piece of garden hose 6 in. long.

A fixer's greatest need is for the screw driver, wrench, and needle pliers, and he should be able to carry these tools in his pockets to the machine that is "flagged." This would not be practical if the tool outfit consisted of a set of three or more long-shank, stocky-handle screwdrivers, and a 5-piece set of "S" wrenches.

SCREWDRIVERS. The best screwdrivers for making everyday adjustments on circular machines are of the knife-handle type in which the blade, shank, and handle are of one-piece forged-steel, so that handles will not twist with hard wear. The handle should be made of some kind of hardwood—preferably hickory. The most suitable sizes are $\frac{1}{8}$-in. and $\frac{1}{4}$-in. blades, and an overall length of 4 in. and 8 in. respectively. The metal is hardened and tempered to the proper consistency and, with ordinary use, the tools should last a lifetime; however, a blade sometimes will get broken, worn round on the edge, or marred to such an extent that it must be dressed down. Probably the best way to do this is by filing. The edge of the blade should be dressed off first, and then beveled for proportion. It is not a good idea to grind the end off square and forge the blade to the desired thickness, because the heat produced by grinding—especially on an emery wheel—and the heat incidental to forging might disrupt the temper of the metal.

An adjustable end wrench taking nuts up to $\frac{15}{16}$ in. and weighing only 12 oz. can be carried from job to job conveniently and, though not so stout and adjustable, in most cases will take the place of the heavier "S" wrenches, for which the fixer has little use.

GRINDING CAMS. Ordinarily, when needle cams or jack cams become rough from the constant but light and rapid striking of the butts against the face of these cams, it is necessary only to burnish the rough surface with a revolving disk. In cases where the cams get so furrowed that a more powerful abrasive must be used, the flat file is perhaps the safest remedy. Grinding, which has spoiled many a cam, is not recommended as a means of restoring the smooth surface and contour; and the hollow-ground stitch cam is gradually passing into discard. Sometimes it is necessary to resort to the emery wheel if the stitch cam is to be hollow ground, but it takes skill to grind a cam effectively this way.

Many people do not know how to use a file. Quite often a fixer may be seen wielding the file to-and-fro over the surface of the cam face, with short strokes, never taking his weight off the file on the back stroke. This is not only wasted effort since the file cuts only on the forward stroke, but also causes unnecessary wear on the file. The most efficient way to file is with pressure applied on a long forward stroke. On the return stroke the file should be raised slightly to avoid unnecessary friction.

PLIERS. Occasionally a retrieving spring will break and a piece must be cut off and a new loop formed with a pair of pliers. For this work side-cutting rather than the jaw-cutting pliers are preferred. If the jaw-cutting type is used to bend the end of a coil spring, the wire may be nicked by the cutting edge of the pliers while bending to shape. In this case, it would be only a short time until the spring broke again. This would not happen with side-cutting pliers, regardless of how careless the fixer might prove.

Needle pliers are used exclusively for aligning the needles, or for pulling butts or other parts of the needle that might be jammed between the cylinder walls. The nose must be long and gradually tapered to a "razor" edge so it can be slipped through a circle of fine gage needles. Needle pliers should be carried in the pocket with the handle down and the nose up, so the sharp edge cannot cut its way out and fall to the floor, thus damaging the pliers.

OTHER TOOLS. The ball peen hammer and pocket knife are nice to have around in case a knitting machine belt breaks or needs taking up or splicing. A knife with a $3\frac{3}{8}$-in. blade is large enough. The handle should be cut away at the end so the main blade can be opened easily and quickly. When trimming the end of a belt off square, the leather should be laid straight across a wood block, and the cutting should always be away from the body. The hammer should be about a No. 00 size with a 12-oz. head. The flat end of the head should be used for driving, and the ball peen end used to clinch belt hooks or to split rivets.

A 2-in. oil brush is good for oiling needles if an oil atomizer is not available, and is always handy for applying neetsfoot oil to leather belting to keep it lively and pliable. Garden hose is very effective for cleaning lint and grime from the pulley side of the belting. It should be furrowed lengthwise preferably, and should be long enough so that it can be held with both hands while the fluted surface of the hose is pressed against the belt. Less hose will be required if the length is cut to $3\frac{1}{2}$ or 4 in. and a wooden handle snugly fitted into the piece of hose.

Since oiling needles and also stud, or shaft bearings, with the ordinary oil can is wasteful and more or less ineffective, it is a good idea for a fixer to have an oil atomizer for spraying the needles. Also, an oil can of the plunger type is useful in metering the correct amount of oil necessary for efficient lubrication.

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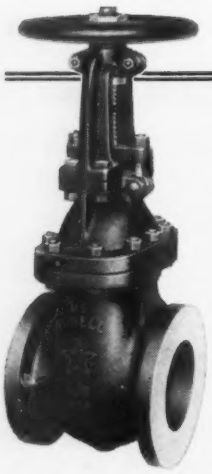
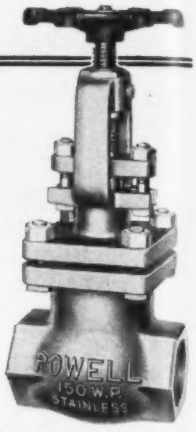
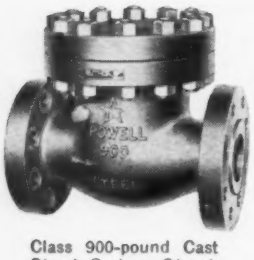


125-pound Iron Body Bronze Mounted or All Iron O. S. & Y. Gate Valve.

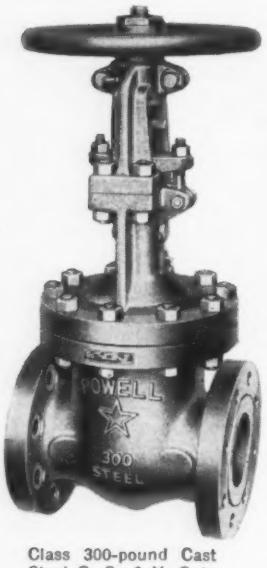
200-pound Bronze Gate Valve with renewable disc.



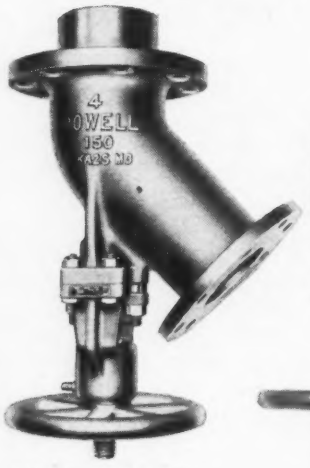
150-pound Stainless Steel O. S. & Y. Gate Valve.



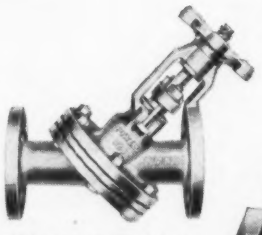
Class 900-pound Cast Steel Swing Check Valve.



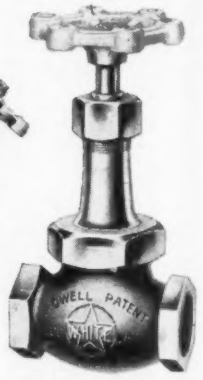
Class 300-pound Cast Steel O. S. & Y. Gate Valve.



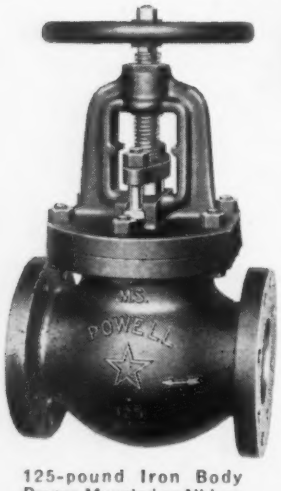
150-pound Stainless Steel Flush Bottom Tank Valve.



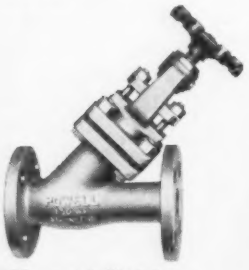
150-pound Stainless Steel Separable Body Reversible Seat "Y" Valve.



200-pound Bronze Globe Valve with re-grindable, renewable seat and disc.

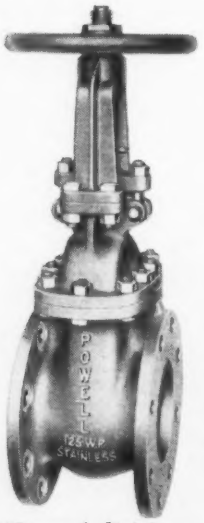


125-pound Iron Body Bronze Mounted or All Iron O. S. & Y. Globe Valve.

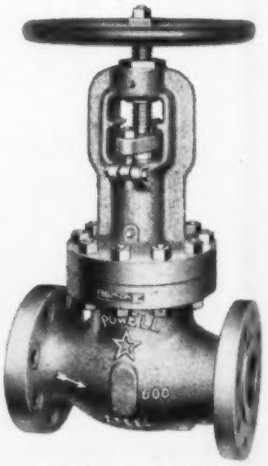


150-pound Stainless Steel O. S. & Y. "Y" Valve.

150-pound All Iron Globe Valve.



125-pound Stainless Steel O. S. & Y. Gate Valve.



Class 600-pound Cast Steel O. S. & Y. Globe Valve.

POWELL VALVES

TEXTILE Equipment NEWS

MACHINERY AND SUPPLIES

Yarn Tension Device

A new tension device which can be used equally well for untwisted, for low-twisted filament yarn, and for high-twist yarns, has been announced by Robert Reiner, Inc., Weehawken, N. J.

The tension device is designed for use on high-speed, over-end warping, and, it is stated, makes the warping of crepe yarn at high speed entirely practicable. Tension is applied to the yarn without stripping action which might back up the twist and cause the crepe to kink. If the crepe twist is set reasonably well and the bobbin is placed in the creel properly (taking into consideration direction of the twist), there should be no snarling of the yarn at any point.

The device consists of a flange, two posts, and a guide. An end passes through a porcelain eye in the center of the flange, around the posts and then goes through another eye. For crepe yarns a pair of specially designed porcelain posts are used. For untwisted yarns conventional chrome-plated posts and disk tensions are employed. Posts are interchangeable.

Rapid Water Analysis Apparatus

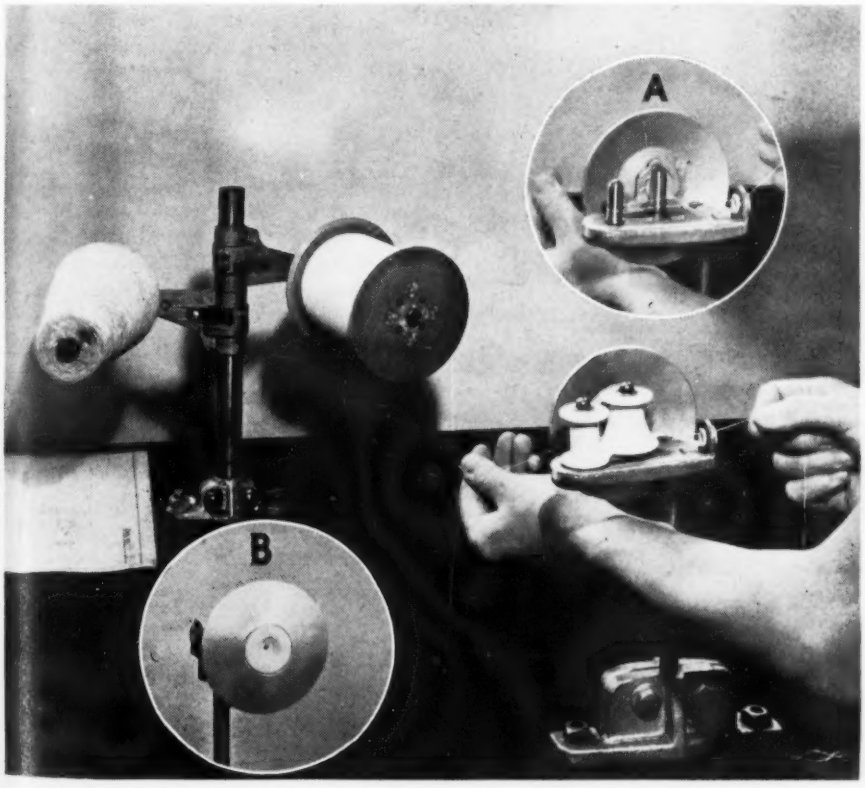
The Aero-Titrater, patent and trademark applied for, a product of Chief Chemical Corp., 55 W. 42nd St., New York 10, furnishes the plant operator and laboratory technician with a rapid, precise method for the determination of hardness, calcium, and magnesium in waters.

Water analysis apparatus (Chief Chemical)

False endpoints are absent; air agitation eliminates tedious and arm-breaking shaking by hand. The accuracy is comparable with lengthy and laborious gravimetric methods, and substances ordinarily present in water do not interfere at all.

This instrument makes use of a new endpoint, based on the foammeter principle. This endpoint is unmistakable and is reproducible with a high degree of precision. Determinations are made within ten minutes, and there is no waiting time to observe stability of lather. The operation gives identical results with different operators.

The ratio of calcium and magnesium present does not affect the determination; there is a single endpoint for stoichiometrically equivalent quantities of calcium and magnesium, regardless of the relative amounts present in the water. Samples of 50 ml. or less are required. The instrument can be used directly with samples which contain chlorides up to 2000 ppm. Sulfates up to 1000 ppm. are also without effect. Large iron con-



Porcelain posts are threaded as shown for running crepe yarns. Inset A shows posts for flat yarns (disks have been removed); B shows flange that keeps yarn from catching on device.

centrations, and the treating and conditioning chemicals used in boiler waters, do not interfere.

The versatility of the Aero-Titrater is further demonstrated by the ease with which micro-determination of calcium and magnesium in boiler scales, minerals, plant ash, rocks, sediments, and similar materials are made. In many cases these determinations are carried out in the presence of all the impurities in the samples.

The instrument is supplied calibrated and ready for assembly and use. There are no moving parts to wear and no delicate features to go out of adjustment. All vital parts are of durable plastic construction.

Measurement of Shrinkage in Hosiery

An instrument for measuring shrinkage in the foot of a sock has been developed by the Textile Section of the National Bureau of Standards, and is being manufactured by S. W. Frazier, 953 Fifteenth St., S. E., Washington 3, D. C.

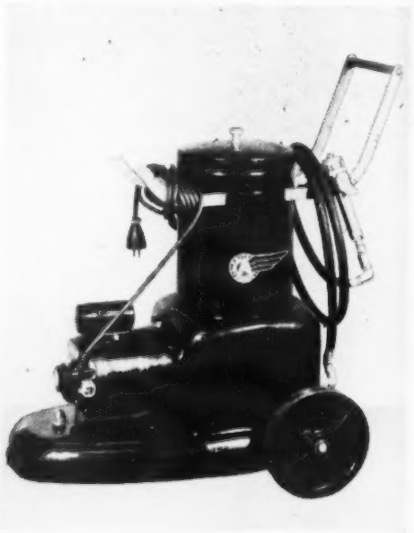
The sock to be measured is placed on the foot form and the clamp is swung in a position which is determined by the stop. The sock is adjusted on the form to align the heel-gore along the upper edge of the clamp. The clamp is securely fastened to prevent slipping of the sock in the clamp when a load is applied. The toe of the sock is adjusted to conform to the contour of the toe of the form. The pointed indicator, attached to the weight, is inserted through the hole at the tip of the toe of the form. The force of the weight is gradually transferred by hand to the toe portion of the form to stretch the foot of the sock under a total net load of 5 lb. The length of the foot under this load is shown on the scale by the position of the pointed indicator.

Instrument for measuring shrinkage in hosiery. Two sizes of instruments are shown (Frazier)

Portable Powered Grease Gun

A new Alemite electric, portable, power industrial grease gun, Model 7190, is announced by the industrial Alemite Division, Stewart-Warner Corp., 1826 Diversey Parkway, Chicago.

The new gun has been developed to deliver fast, positive high-pressure lubrication with all types of lubricants that seek their own level. Equipped



Portable, electric powered grease gun for mill use (Alemite)

with large, heavy-duty wheels for easy mobility, operation is further facilitated by means of a ball-bearing front caster in the steering mechanism. A quiet driving device connects a ⅓ hp. electric motor to a high-pressure grease piston and cylinder made of hardened steel and fitted to close limits to prevent by-passing. A mercury switch automatically shuts off the motor when 5,000 lb. of pressure have been built up in the delivery hose attached to the grease fitting.

The gun has an easily accessible check valve and pressure-release valve. Equipment includes a 12-ft. electric cord, a 6-ft., ¼-in., 20,000 lb. burst pressure hose and control valve with hydraulic coupling combination handle, cord and hose rack. The gun stands 28½ in. high, 15 in. wide and 26 in. long.

New Synthetic-Yarn Shuttle

A shuttle, known as type SR-109 and made for the Crompton & Knowles super-silk loom, has been announced by Southern Shuttles Di-

THE RIGHT RING TWISTER FOR *Your* YARNS

While lining up your production plans, be sure you see the new ATWOOD Ring Twister and get the facts on its performance. Atwood has been building Twisters for the finest hosiery and dress goods yarns for nearly a hundred years. The new heavy duty Atwood Ring Twister has what it takes to produce clean, precision twisted, uniform yarns and do it better, faster and at lower cost. It handles from 2 to 12 ends — delivers from cakes, cones, bobbins or tubes — produces any twist you want, from ½ to 70 turns per inch, on any size package up to 5 inch diameter, 9 inch traverse . . . Now is the time to get the story as it applies to *your* yarns and *your* production needs.

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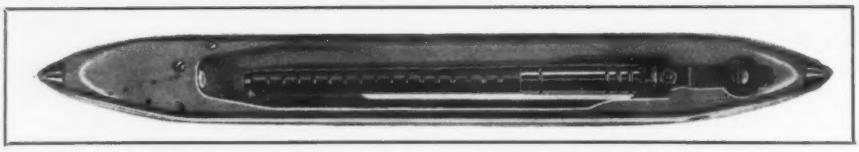


Shuttle developed for use on the C & K super-silk loom (Southern Shuttle)

vision of Steel Heddle Mfg. Co., Greenville, S. C.

The shuttle has been scientifically engineered and embodies many new and patented features. It is made with an extra long bobbin chamber to hold the long metal-base paper tube or bobbin. A synthetic rubber box is used for holding properly the metal-base paper tube, and this prevents bruising the metal base. It is stated that the design of this shuttle prevents disturbing of yarn when inserting the bobbin on the spindle and into the shuttle. Also it keeps down sloughing and tangling of yarn. The shuttle will not tear or scar the metal base or allow the yarn package to vibrate on the spindle. It is equipped with a No. 626 R.B. spindle, having a special levelling screw. The shuttle may be fitted with any one of a number of types of spindles and tensions made by the company.

Mill Maintenance TO KEEP 'EM RUNNING

Correct Drill Pointing

Elimination of drill breakage depends, to a very great extent, on the correct point-grinding of the drill, according to a booklet entitled "Correct Drill Pointing," published by Chicago-Latrope Twist Drill Works. When the drill is worn down by use, it must be taken out and re-ground or breakage will result. Not only must a drill be re-ground in time, but it must be properly ground in order to assure maximum drilling life. It has been estimated that 90% of all drill breakage is caused by incorrect re-grinding, and for this reason, too much emphasis cannot be laid on the importance of this operation.

Point-grinding by hand requires great skill and care on the part of the operator, and whenever skilled help is not available, the use of a point-grinding machine is recommended.

If the drill is accidentally allowed to get too hot during grinding, it should never be cooled off in cold water, but should be allowed to cool of its own accord. A sudden cooling is almost sure to result in a cracked drill.

When re-pointing a drill, four things must be carefully considered: (1) lip-clearance, (2) point-angle, (3) cutting edges, (4) point-thinning.

Lip Clearance. The lip-clearance is one of the most important features of the drill-point. The angle of lip-clearance should be within 12 to 15°, Fig. 1, measured at the circumference of the drill. If the angle is greater, it weakens the cutting edge; if smaller, there is not sufficient clearance to allow the cutting lip to enter the work and the usual result is that the drill splits up the center.

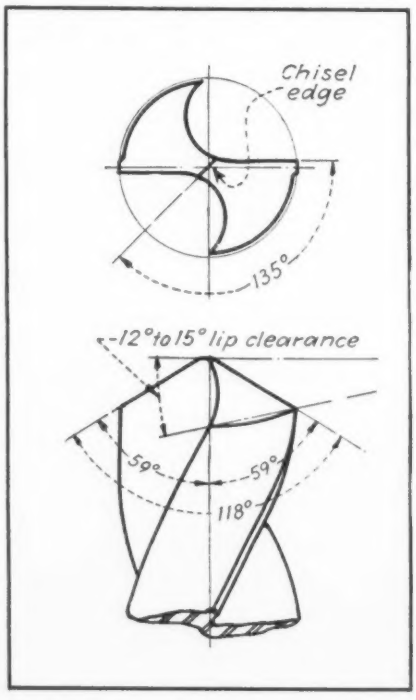


Fig. 1. Lip clearance and point-angle generally recommended for most drills are shown.

Point-Angle. The angle of a drill-point is measured to the axis of the drill. The proper point-angle of a drill depends upon the material being drilled. However, most standard drills are furnished with 59° points, Fig. 1, as this angle has proven to be the most suitable for the average class of work. In general, it can be said that the harder the material the greater the point-angle should be. For example, a point-angle of 75° is recommended for manganese steel, while for wood, fiber, and smaller materials, a point-angle of 30° is recommended.

Cutting Edges. The two cutting edges of a drill must make exactly the same angle with the center line of the drill. In other words, while the 59° angle may vary a trifle one way or the other, the variation must be uniform in both cutting edges. A difference in angle will cause one edge to cut differently from the other, and thus put an unequal strain on the two edges.

If the cutting edges are of unequal length, the result is that the point or "chisel-point" is off-center, even though the point-angle may be uniform on both edges. This condition will cause the drill to cut oversize, Fig. 2.

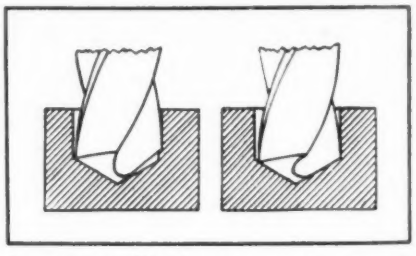
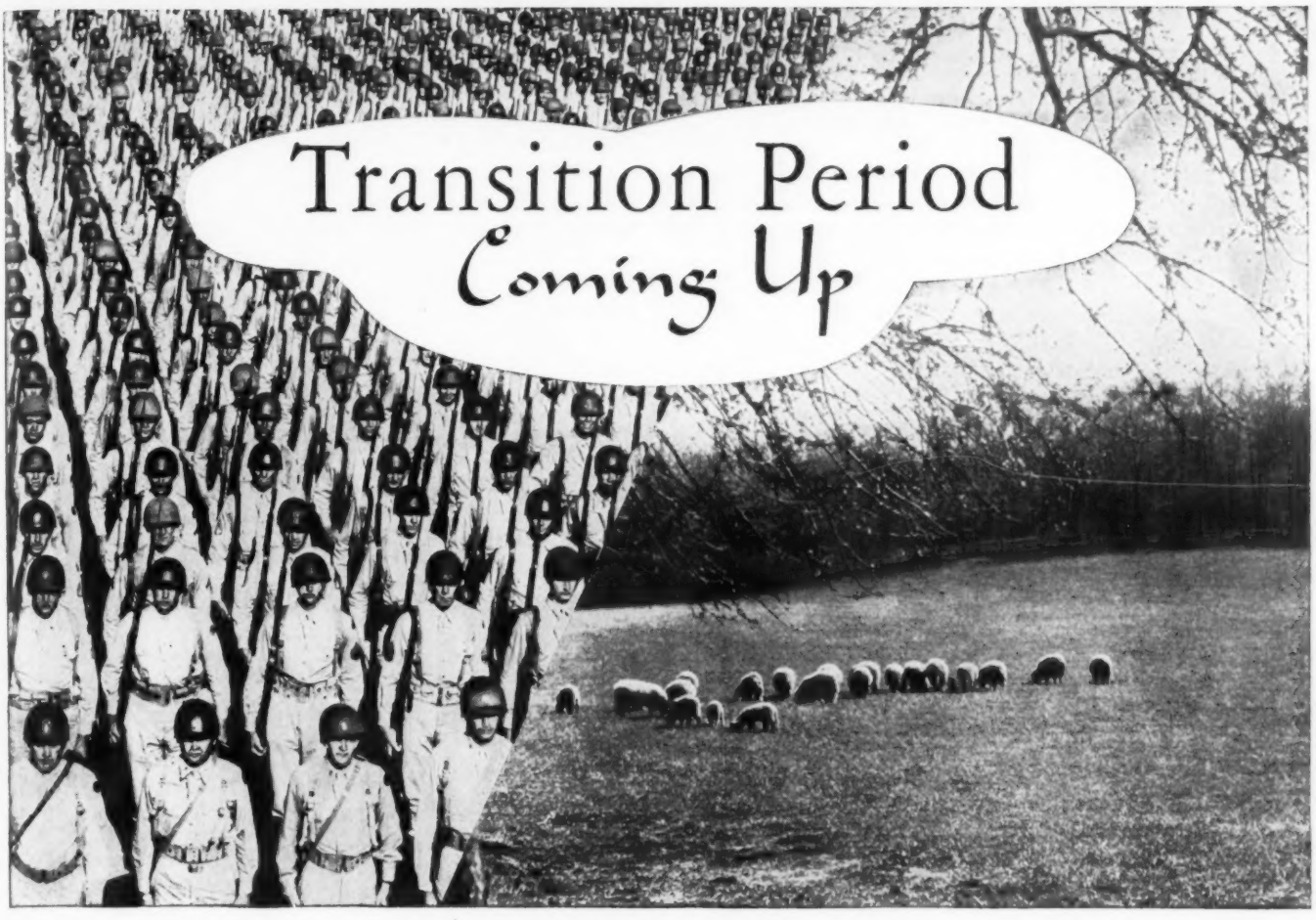


Fig. 2. Left—Chisel point ground on center, but point angles unequal. Right—Point angles ground equally, but chisel point off center.

If the point-angle is changed from 59°, as originally made, it will be found that, due to this change, the cutting edges are no longer straight but have become either convex or concave. If the point-angle is changed appreciably, it may be necessary to grind the flutes of the drill in order to produce straight cutting edges.

Point-Thinning. The web of a drill increases in thickness toward the shank and a web-thinning operation becomes necessary when the drill has been shortened by repeated grindings. This operation is essential in order to minimize the pressure required to make the drill penetrate. The point-thinning operation must be carried out



Reconversion is upon us—and will stay with us for the next twelve months and longer. In fact the change-over period may last for years. The pace of research and development has been accelerated, and we look for continuing changes from now on.

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equally on both sides of the web, otherwise the web will be off-center and the drill will produce an oversize hole. Care must also be taken to see that the thinning operation is not carried too far up the web, thus weakening the point of the drill. As a general rule, a web thickness at point of approximately 12½% (⅛) of the drill diameter, is recommended.

Painting Masonry Materials

Wartime wear and neglect take their toll not only of exposed wood and metal surfaces but of masonry structures as well, according to an article appearing in a recent issue of *The Dutch Boy Painter*, published by National Lead Co.

Often the first sign that something is wrong with a brick, stucco or concrete wall is moisture appearing on the interior surfaces of the building. In some cases, cracks due to settling of the structure or to shrinkage of the masonry materials cause considerable trouble which might have been avoided had they been properly painted in their early stages, before they have widened and deepened beyond the painter's "jurisdiction".

Today, however, the painter may choose between paste white lead and ready mixed pure white lead paint. Pure white lead exterior primer can be counted on to do a top quality, decorative, durable, semi-flat job on masonry surfaces, and it will effectively stop ordinary moisture seepage. Two coats of this primer should be applied just as it comes in the container, with a couple of good drying days between.

If the exterior primer is not available, Dutch Boy Soft Paste White Lead may be used as given in the accompanying tables.

Each coat should be allowed a couple of days good weather to dry and harden properly before the next coat goes on. During damp weather a week may be needed between coats. Never paint stucco of magnesite composition with oil paints.

PAINTING EXTERIOR COMMON BRICK

Materials	Priming Coat	Second Coat	Finishing Coat (Gloss)	Finishing Coat (Semi-Gloss)
Dutch Boy Soft Paste White Lead*	100 lb.	100 lb.	100 lb.	100 lb.
Dutch Boy Linseed Replacement Oil	5 gal.	3 gal.	3¼ gal.	1 gal.
Pure Turpentine	¾ gal.	1 gal.	.....	.....
Dutch Boy Flatting Oil	.....	.....	.....	2 gal.
Paint Produced	9 gal.	7¼ gal.	6½ gal.	6¼ gal.
Coverage Per Gal., 1 Coat	200 sq. ft.	400 sq. ft.	500 sq. ft.	500 sq. ft.

PAINTING EXTERIOR STUCCO, CONCRETE AND STONE

Materials	Priming Coat	Second Coat	Finishing Coat (Gloss)	Finishing Coat (Semi-Gloss)
Dutch Boy Soft Paste White Lead*	100 lb.	100 lb.	100 lb.	100 lb.
Dutch Boy Linseed Replacement Oil	5 gal.	2 gal.	3¼ gal.	1 gal.
Pure Turpentine	.....	1 gal.	.....	.....
Dutch Boy Flatting Oil	.....	.....	.....	2 gal.
Paint Produced	8 ¼ gal.	6 ¼ gal.	6½ gal.	6¼ gal.
Coverage Per Gal., 1 Coat	200 sq. ft.	400 sq. ft.	500 sq. ft.	500 sq. ft.

REPAINTING PREVIOUSLY PAINTED BRICK, STUCCO, CONCRETE AND STONE

Materials	First Coat	Finishing Coat (Gloss)	Finishing Coat (Semi-Gloss)
Dutch Boy Soft Paste White Lead*	100 lb.	100 lb.	100 lb.
Dutch Boy Linseed Replacement Oil	2 gal.	3¼ gal.	1 gal.
Pure Turpentine	1 gal.	.....	.....
Dutch Boy Flatting Oil	.....	.....	2 gal.
Paint Produced	6¼ gal.	6½ gal.	6¼ gal.
Coverage Per Gal., 1 Coat	400 sq. ft.	500 sq. ft.	500 sq. ft.

*If heavy paste white lead is used, add 1 qt. of turpentine to all formulas.

DYES & CHEMICALS — PRODUCTS & PROCESSES

Water-Free Compound For Use on All Fibers

CATION-ACTIVE COMPOUNDS; Kilcommons Chemicals Corp., Providence, R. I.

Kilcommons Chemicals Corp., Providence, R. I., recently announced manufacture of a type of cation-active and substantive finishing compounds claimed to be the first offered to the industry which are entirely free of water.

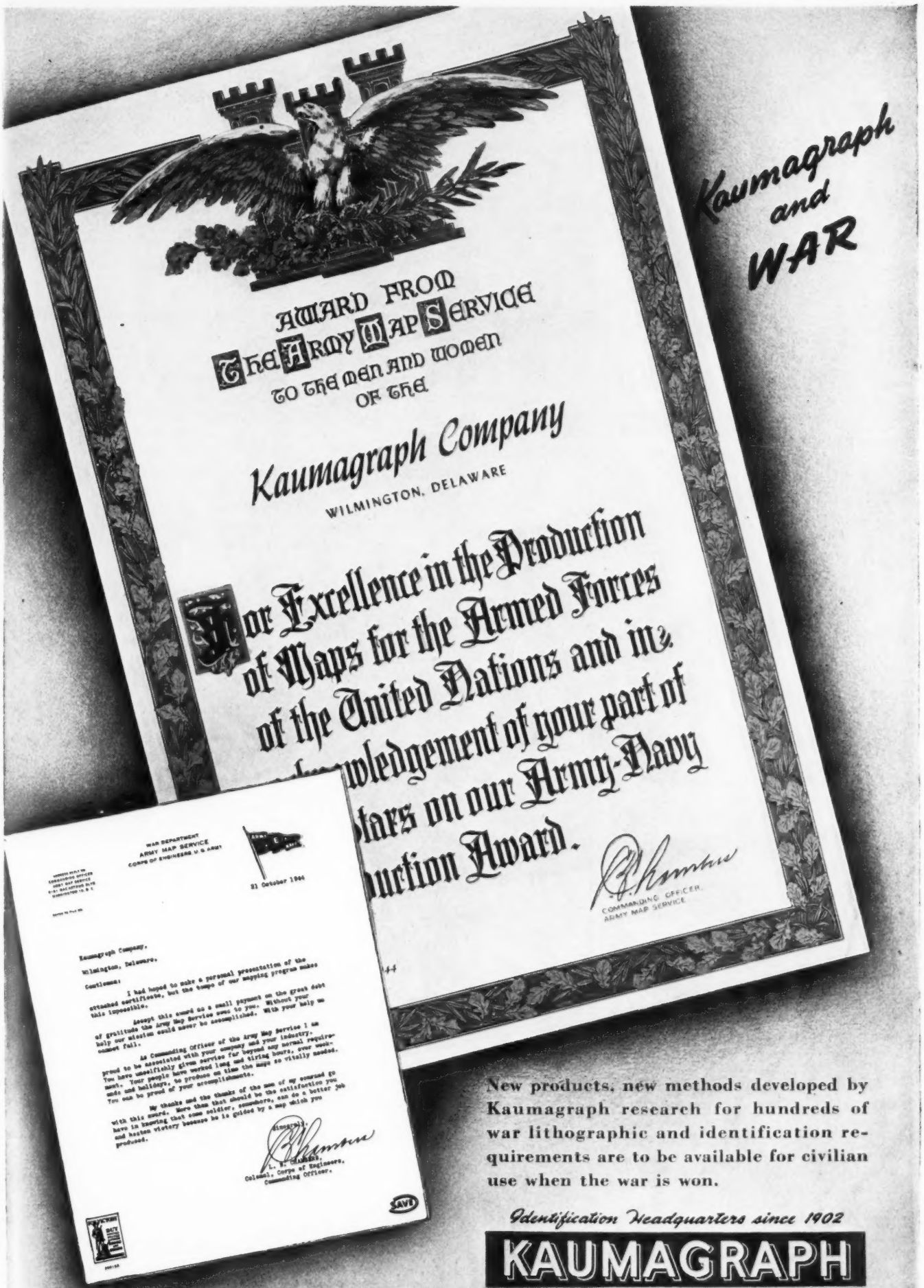
These fully-concentrated finishing compounds are available for application on all fibers including cotton, rayon, silk, wool, and Aralac. No extra operations are involved on the part of the users of these concentrates. Shipment is made in blocks of proper consistency for easy cutting. With the exception of Kilco-Mine-S and Kilco-Terge-A, these blocks are packed in paper containers.

For Experimental Use

COPPER AMMONIUM FLUORIDE; Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia, Pa.

This company is now offering, in experimental quantities, copper ammonium fluoride in two strengths, 10% copper and 15% copper. Both materials are said to have been approved as complying with chemical requirements of U. S. Army Corps of Engineers Tentative Specification No. T-1542A, and both represented by the approximate formula $Cu(NH_3)_4F_2$.

Copper ammonium fluoride is applied from an aqueous solution in a single-bath treatment and is compatible with standard water-repellents.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attached certificate, but the tempo of our mapping program makes
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Accept this award as a small payment on the great debt
of gratitude the Army Map Service owes to you. Without your
help our mission could never be accomplished. With your help we
cannot fail.
As Commanding Officer of the Army Map Service I am
proud to be associated with your company and your industry.
You have unselfishly given service far beyond any normal require-
ment. Your people have worked long and tiring hours, over week-
ends and holidays, to produce on time the maps so vitally needed.
You can be proud of your accomplishments.
My thanks and the thanks of the men of my command go
with this award. More than that should be the satisfaction you
have in knowing that some soldier, somewhere, can do a better job
and hasten victory because he is guided by a map which you
produced.
Sincerely,
L. B. Clarkson,
Colonel, Corps of Engineers,
Commanding Officer.
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Kinks AND SHORT-CUTS

A $25 WAR BOND FOR YOUR IDEA

A $25 War Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operations. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Your identity will not be pubished unless you give permission.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

★ **THIS MONTH'S PRIZE WINNER**

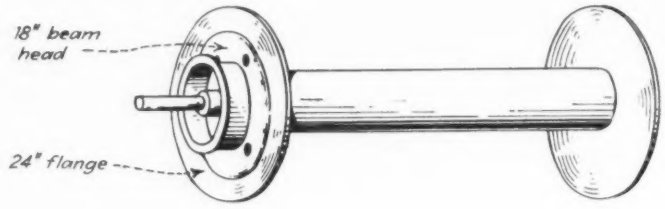
Increasing to Larger Warp Flanges

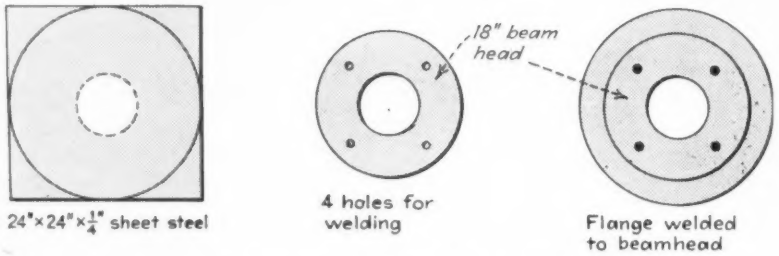
Changing warp beams from 18-in. diameter flanges to 24-in. diameter with the resultant increase in warp yarn per beam can be readily accomplished without much cost by using the method shown in the sketch.

Since we had plenty of beams on hand of the smaller diameter, we felt it advisable to make a change in order to overcome labor shortage in mounting warps and at the same time secure numerous advantages which are apparent with the larger-diameter beam flanges. Beams, however, of the type we used were difficult to obtain. The change-over was solved by making use of ¼-in. sheet steel that was obtainable.

Sheet steel 24-in. wide was cut into 24-in. sections, and one side was given a mirror polish. The plate was rounded and a center hole was cut so that it would fit snugly over the beam barrel. The small-diameter beam head was taken off, and four 1-in. holes were drilled through the flange. The larger-diameter plate was placed on a template with the beam head on top, and the two were welded together through the four holes in the beam head.

This increase in flange size is a permanent job. The larger head is as satisfactory as a new unit would be—and costs much less. (K-274) H. E. Wenrich, Berwick, Pa.





Flange fastened to beam head by this method is smooth on the inside.

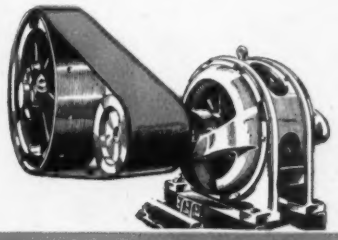
Ribbon Hole-Punch Fastens to Workbench

When renovating loom harnesses (such as placing on new heddles, hooks, ribbons, etc.) the device shown in the sketch offers a quick method of punching end-holes in ribbons when needed. It can be fastened permanently to the work bench to make it easier to use.

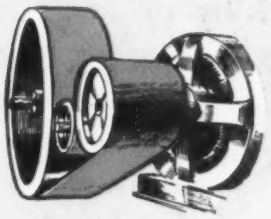
This small device is made from ⅜-in. x ½-in. key stock. Two holes are drilled through one end for screws to fasten it to the bench. A slot is sawed through the opposite end to take the

REEMAY

Used for longer life on pivoted-motor-base, idler, high-speed, and open drives; small pulleys; overloads; shockloads; and short centers. Resistant to boiling water, oil, acid fumes, dry heat to 365°, alkalies, dust. Chrome Retanned. Highest tensile strength. Greater transmitting capacity. Practically free of static electricity. Specially curried. Hand processed by skilled workmen.



GAM-OIL

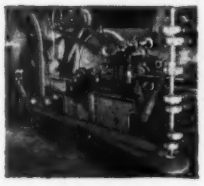


Used for longer life on idler, high-speed, and open drives; small pulleys; overloads; shockloads; and short centers. Resistant to oil and heat. Tanned in Gambier by our long-time process. Greater tensile strength than Oak Tan. High transmitting capacity. Very flexible. Specially curried. Hand processed by skilled workmen.

HERE'S YOUR BELTING

FOR EVERY PROBLEM OF GREATER TEXTILE *Production*

BARNES *Combination* BELTINGS



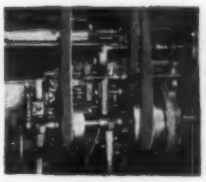
REEMAY AND BARNES OAK

For condenser drives, eccentric drives, mule drives, spinning-frame drives, Gaulois pulleys, and generators. Reemay ply goes next to pulley for high coefficient of friction; oak ply on top, for weight and firmness.

MINERAL TAN AND BARNES OAK

For drives in wetness, excessive moisture, or high humidity conditions where shipper or flange pulleys are involved. Mineral Tan ply goes next to pulley to withstand moisture without slipping or stretching.

GAM-OIL AND BARNES OAK



Specifically used on overloaded drives for immediate starts with no slipping or stretching. Gam-Oil ply, which has the highest coefficient of friction of any of our leathers, goes next to pulley. This belt is especially adaptable to picker drives which have changing loads.

All Barnes belting is put together throughout with waterproof cement and made strictly from first-quality center stock. All belting is prestretched, run in, and tested. Special treatments against mineral oils, steam, acid fumes, etc., are given on request. Write for thickness schedule and price list.

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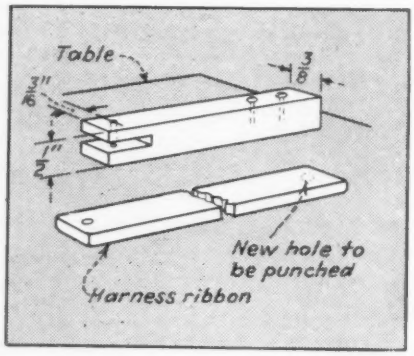
Where unusual knowledge of Leather is combined with long years of Textile experience

APRONS—BELTING • FLAT • ROUND • & ACCESSORIES—STRAPPING

KINKS & SHORT-CUTS

(Continued from page 142)



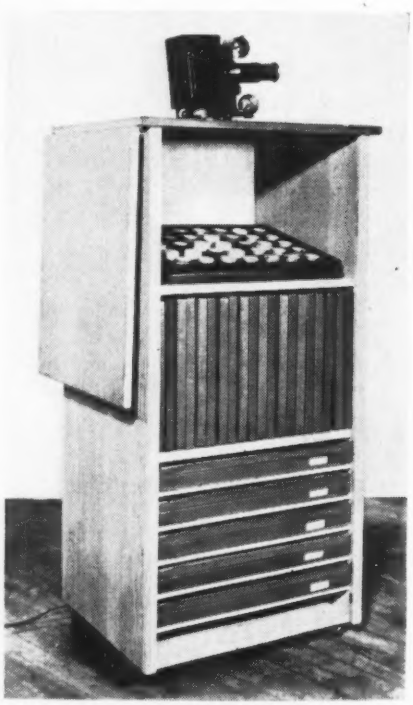
Jig saves time when punching holes

harness ribbons requiring new holes. End holes are generally $\frac{3}{16}$ in. in from the end, so a $\frac{1}{4}$-in. hole is drilled through this point as indicated. If possible, drill a slightly larger hole down through the work bench so that waste will drop through. (K-231)

Visual-Aid Cabinet Designed for Mill Use

The increased use of visual aids in educational and training work among textile personnel has shown a need for a projection and storage cabinet especially for this kind of work. Such a cabinet is shown. It can be easily built at small cost by anyone handy with tools. A slide or film projector can be placed on top of the cabinet which is of suitable height for the average factory group. A folding top may be added to make space for a 16 mm. motion-picture projector, but the bracket should be mounted on hinges so it can be swung back to allow the top to drop down. The cabinet should be mounted on casters so that it can be moved freely around the mill or the room. If desired, a door can be added so that the projector and films can be locked up when not in use.

The cabinet can be made of redwood or plywood. Standard cabinet construction should be followed in assembling the parts. Finish can harmonize with wood work or furnishings.



This projector cabinet is useful in educational or training work.

Materials Needed

Part	Quantity	Size in inches
Top	1	$\frac{13}{16}$ x 19 x 24
Bottom	1	$\frac{13}{16}$ x 18 x 22
Folding top	1	$\frac{13}{16}$ x 19 x 22
End	2	$\frac{13}{16}$ x 18 x 47
Shelf	2	$\frac{13}{16}$ x 18 x 21½
Bracket	1	$\frac{13}{16}$ x 14 x 16
Separator	5	½ x 18 x 21½
Back	1	¼ x 22 x 48
Facer strip	2	½ x 1½ x 47

1 pair 2½ butt hinges
1 pair butterfly hinges
4 casters

The drawing shows the cabinet dimensions. (K-235)

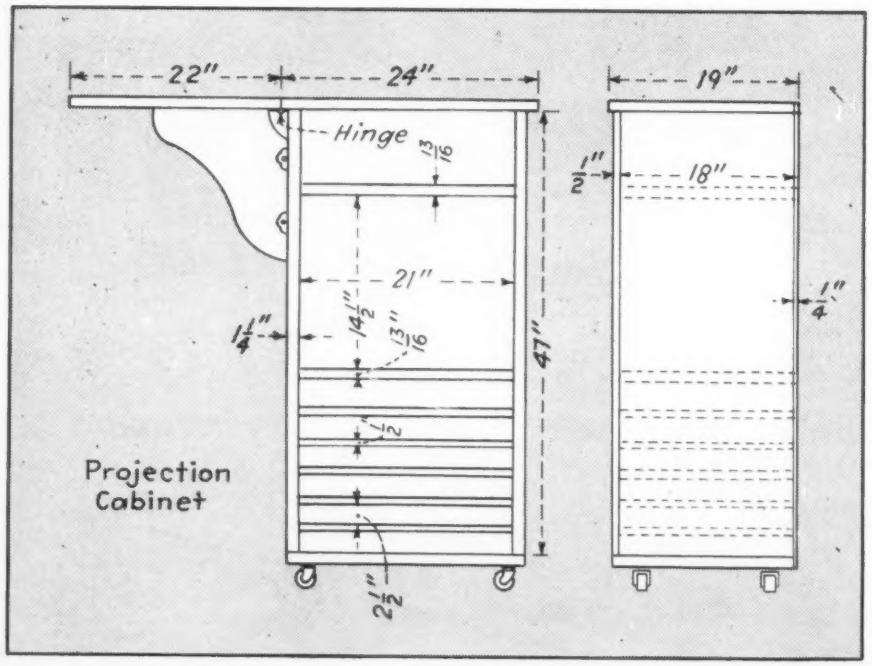
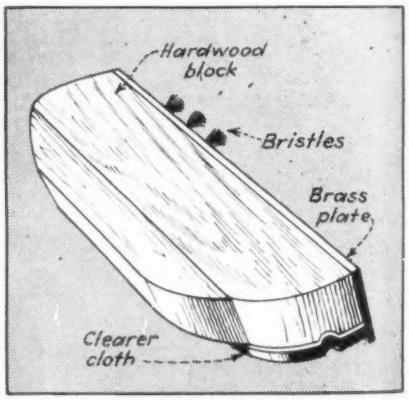


Diagram for building visual-aid cabinet shows dimensions

Thread-Board Cleaner Made from Wood Block

The accompanying sketch shows a small gadget used to keep the thread boards and thread-board rails clean. This appliance consists of a hardwood block grooved to allow the hinges of the thread boards to pass through.

The bottom edge is covered with clearer cloth. The back edge carries

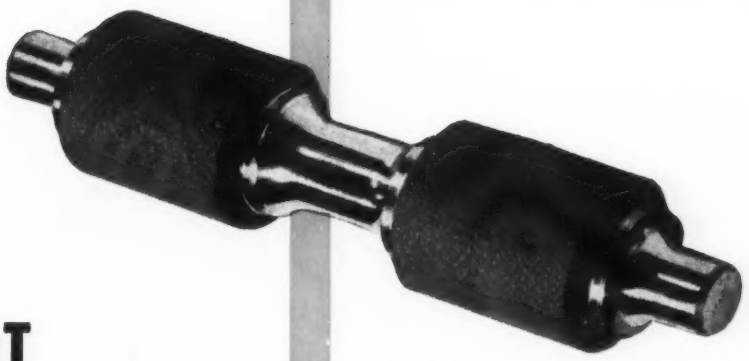


Thread-board cleaner also brushes roller beam.

a brass plate which keeps the block in a straight line when pushing it along the frame. Inserted in the back edge are a few bristles to brush the edge of the roller beam. (K-227)

Segment Timing Gage For Knitting Machines

The zero marks on the gears and pinions of knitting machines indicate the correct meshing of the gear teeth; but after the heads of the machines are in place, it is difficult to see the marks because they are at the back of the pinions on the clutch and driving shaft. The simple gage shown in the sketch not only insures correct mesh-



THIS IMPROVED SYNTHETIC COT REDUCES TOP ROLL LAPPING

. . . because it is nonsweating and tends to repel fibers

ARMSTRONG'S new Accotex Cots are made of a cork-and-synthetic-rubber composition that does not "sweat." It has little affinity for textile fibers. Consequently, with Armstrong's Accotex Cots there is less top roll lapping than with other synthetic roll coverings.

These advantages, along with the others listed at the right, explain why Armstrong's new Accotex Cots—though first offered to mills only two years ago—are already serving more spindles than any other synthetic covering.

If you would like to prove these advantages in your own mill, get in touch with your Armstrong representative. He'll be glad to give you complete information about Accotex Cots and arrange for you to make your own mill tests. Or write direct to Armstrong Cork Company, Textile Products Department, 8312 Arch Street, Lancaster, Pennsylvania.

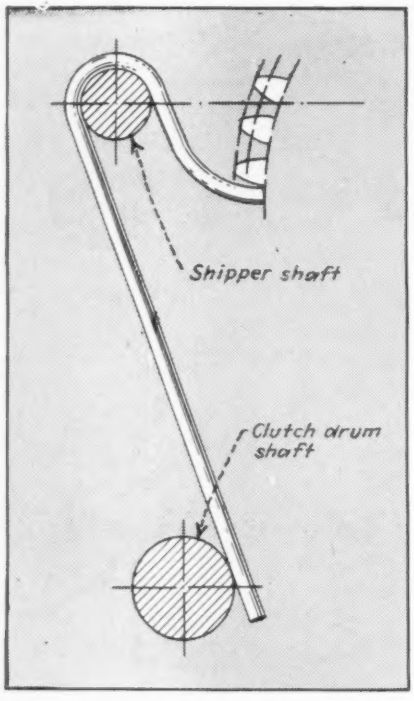
1. **LONG SERVICE**—Accotex Cots are tough. And they can be rebuffed 3 or 4 times.
2. **GOOD DRAFTING**—Accotex Cots retain their excellent grip, because they resist slicking.
3. **REDUCED EYEBROWING**—The resistance to slicking minimizes eyebrowing.
4. **REDUCED LAPPING**—Accotex Cots have little affinity for textile fibers and are nonsweating.
5. **GOOD START-UP**—Accotex Cots are non-thermoplastic and resist flattening.
6. **SOLVENT RESISTANCE**—Accotex Cots are not affected by oil, water, dyes, or textile solvents.
7. **SEAMLESS CONSTRUCTION**—Accotex Cots have no seams—can't break open in service.
8. **QUICK ASSEMBLY**—Accotex Cots are ready glued.

ARMSTRONG'S ACCOTEX COTS

CORK COTS • ACCOTEX APRONS

KINKS & SHORT-CUTS

(Continued from page 144)

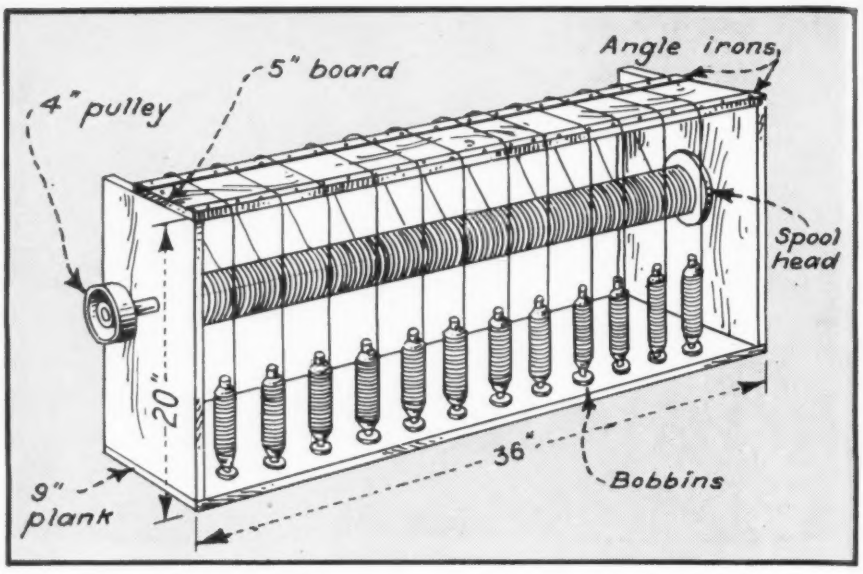


Segment timing gage used instead of markings.

ing of the segment and its pinion, but supports the segment while the clutch shaft is being put into its bearings.

The gage is bent and then trimmed to fit a correctly timed machine. Soft tool steel $\frac{1}{8}$-in. thick by $\frac{1}{2}$-in. wide is recommended. Later, harden it.

The gage is used in the following manner: Start the machine into the reciprocating motion by hand, and bring the mark on the bevel gear to the locating position. Remove the switch cam and lock the sleeve gear with one of the switch-bracket screws. Then push the shipper shaft out through the shipper far enough to remove the clutch form and chain-pawl apron, and push the shipper shaft back through the left-hand bearing and the auxiliary-feed levers. Now hang the gage on the shipper shaft to support the segment while repairs are made, after the clutch shaft has been removed. When returning the clutch shaft to its bearings keep the clutch engaged with the segment pinion. Ordinarily the gage will rest on the clutch-drum shaft after the clutch shaft is in place, but on a few machines, due to wear or other causes, there was found a clearance between the gage and clutch-drum shaft of $\frac{1}{8}$ in. or less. After the segment gear and pinion are engaged, the long pinion may be meshed in the usual way. *(K-220)*

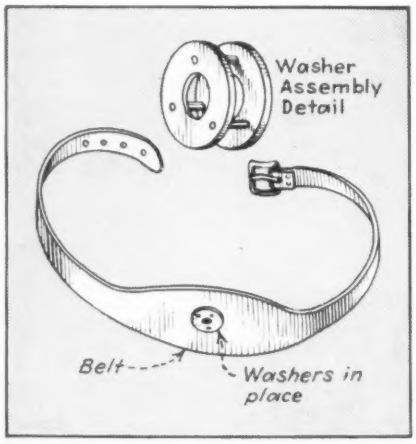


Reel for unwinding woolen bobbins to salvage the wool.

Belt Useful When Polishing Shuttles

A very useful kink for shuttle-fixers and loomfixers is a belt such as shown in the illustration. This belt is made from discarded leather belting about 4 in. wide. Cut the belting to size and shape desired and taper the buckle end so that when folded over and riveted together it will be smooth. Punch holes in the opposite end. Then drill three $\frac{1}{8}$-in. holes in two brass washers. (It is best to use a C-clamp to hold washers together so holes will be lined up.) Place a washer on each side of the belt at the place shown and rivet them together. Countersink the front washer and smooth off any rough edges found.

This belt is to be used when polishing shuttles and points. By placing the shuttle point in the belt hole, the shuttle can be twirled around easily when polishing the opposite point. It will also save wear on clothing and might prevent possible injury. *(K-242)*



Belt for use when polishing shuttles.

Bobbin Unwinder Saves Time in Woolen Mill

Because of the help situation in our woolen mill, we have a great many waste bobbins (often several barrels at a time) to be unwound by hand and the yarn put through the garnett machine so that we can use the wool again.

The former method was to throw a number of bobbins in a barrel and pull off the yarn by hand, a slow process to be sure. To speed up the unwinding I built the device shown.

The bottom and sides of the frame are made of 9-in. planking; a 5 in. board is used across the top. It has angle iron on the top edges since the yarn is run over the board, down to the take-up spool.

The center spool is made from a 4-in. wooden shaft (any discarded shaft may be used that can be made to fit the frame). I use spool heads on the ends of the shaft which has a 4-in. pulley on the end so that the shaft of the garnett can drive the take-up.

Old spindles from a spinning machine can be used to hold the bobbins. This particular machine is made to hold 12 bobbins. *(K-262)*

Shuttle Point Makes Good Center Punch

The center punch shown is made from a shuttle point and short length of cold-rolled steel. The novel feature about this shop-made punch is the replacement of the point when damaged or broken, without discarding the holder.

To make it, remove a shuttle point

Syzon

FOR SIZING NYLON YARN

Literally, when life hangs by a thread, SYZON makes a vital contribution. Parachute cloth woven from warps sized with Sonneborn's SYZON meets all specifications of the Armed Forces. Best results are obtained when SYZON is used right on the slasher.

COMPLETE VICTORY COMES FIRST ★ ★ ★

but when Nylons come back, remember SYZON, too. Ideal for sizing yarn for full-fashioned and circular knit hosiery.

Syzon Advantages . . .

Easy Application · Superior Knitability · Adjustable to Varying Humidity and Temperature Conditions · Improved Boil-Off

There is a specific SYZON formula available to meet every problem of warp sizing. Trained field specialists who know your problems are available for consultation. Working samples will be sent promptly upon request.

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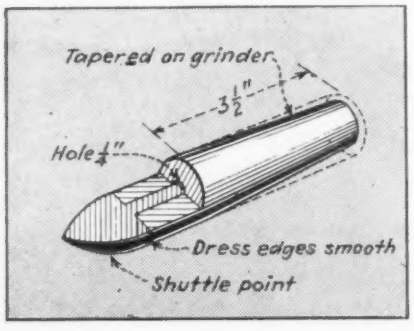
KINKS & SHORT-CUTS

(Continued from page 146)

from a discarded shuttle. Remove the brass or fiber shim back of the point. Then obtain a short length of steel—it can be ¾-in. old shafting or a worn stud of suitable diameter approximately 3½ in. long. Grind the short length of steel as shown to serve as the point



Punch features replaceable points from old shuttles.

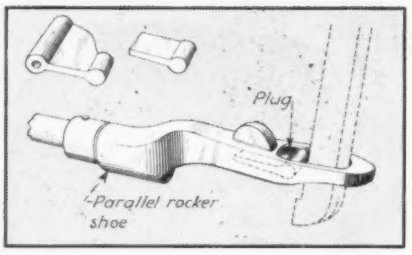
holder. Drill a ¼ in. hole down through center to take the point. The point shank usually has a few extruding ridges over ¼ in. in diameter and, when driven into the hole, grips fast. If the point shim lips have sharp edges, dress them off on an emery wheel. Dress the completed tool to a bright finish and round the striking edge slightly.

To replace points, drive off old point and place in a new, hard point secured from worn or broken shuttle. *(K-232)*

Parallel Rocker Wedge Made From Old Picker

Temporary rocker wedges for parallel rocker irons can be fashioned from single- or double-face rawhide pickers which have been discarded but are not completely worn or broken off near the round head. As fixers well know, a solid-iron rocker when worn down will not give a satisfactory pick. In order to eliminate this bad feature, the rockers were cast with hollow wedge-like centers and wood plugs were inserted. Iron, fiber, and plastic plugs have also been tried—iron has proven unsatisfactory. The good feature about this parallel is that when the plug wears down, it can be replaced with a new plug that will give correct parallel to the shuttle.

If a fixer is short of suitable plugs or has trouble with wood plugs wearing too rapidly, try the rawhide plug, shown in the sketch, cut from a discarded picker. These make-shift plugs will normally give good service. *(K-191)*

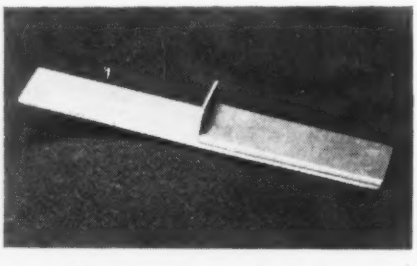


Rawhide plug can be used in parallel motion with provision for insert.

Single Gage Simplifies Card Setting by Grinder

In the past when a card grinder found it necessary to use a gage for setting his card screens, he generally used the button on the 3- or 4-leaf gage to make the setting at the front of the card, and used a combination of several gages to get the required thickness at the other setting points.

The screen gage illustrated herewith has been devised to simplify this job. The thick end, which is approximately $\frac{5}{16}$ in. thick, is used to get the right setting at the front of the card; the thinner portion, at the middle and back. As can be seen from the sketch, this gage is very simple and can be constructed in any mill machine shop. *(K-250)*

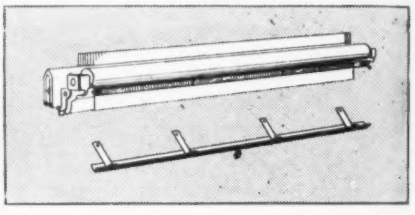


Handy gage for card grinders.

Angle-Iron Lap-Preventer For High-Speed Warpers

The accompanying drawing shows how a length of angle-iron can act as a lap-preventer on the front rolls (sometimes called whiprolls) of high-speed warpers. We had good success using 1-in. angle. The main trick was to so mount the angle-iron that it cleared the roll by ⅛ in. and was in such a position as to be out of the way.

It may seem that this arrangement would not prevent laps, but it does. As the end follows the roll in an attempt to form a lap, an air current at the angle-iron drives it away from the roll. Thus the drop wire can fall and stop the warper. *(K-212)*



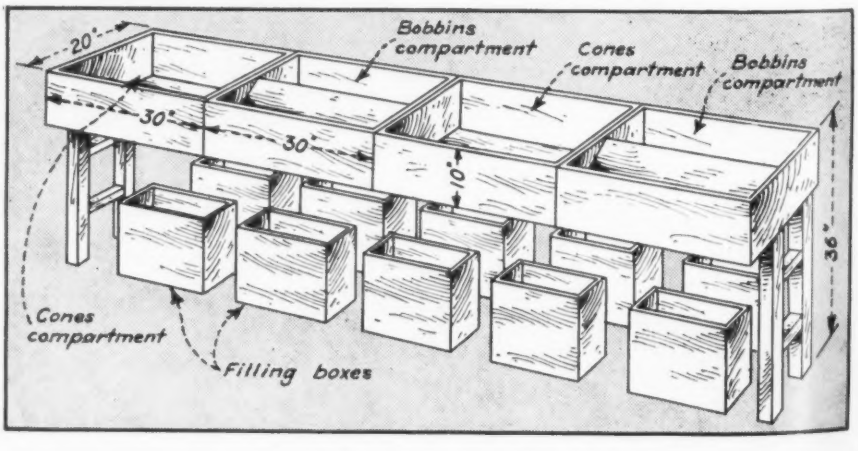
Mount angle-iron ⅛ in. from the roll.

Section Tray Holds Bobbins and Yarn Supply

The sectional tray shown is useful for holding cones and empty bobbins in conjunction with Whitin-Schweiter or Hacoba automatic filling winders.

Note that the bottom of the compartment for bobbins slopes toward the winder operators so that the bobbins are always against the side. At our mill, there are winding machines on each side of the tray. The compartments for bobbins and compartments for cones can be spaced about 30 in. apart so that different yarns may be used and may be kept separate.

Boxes of filling may be kept under the bench and thus do not take up any alley space. *(K-261)*



Section trays between rows serve automatic winders.

FULLERGRIPT WORSTED-CARD BRUSHES

Bristles are securely gript in rust resisting metal. This strip is then coiled compactly, like fillet card clothing, around a metal core, which cannot soak up oil, crack or split. This construction gives maximum bristle density, longest life and lowest cost; it also prevents shedding of bristles and the consequent ruining of good stock by the introduction of highly objectionable "foreign matter."

Again Fullergript Textile Brushes do a Better Job at Lower cost!

Here is a new success story — to add to the ones on Fullergript cotton-card brushes, Fullergript thread-dresser brushes, Fullergript dabbing brushes and other Fullergript textile brushes.

FULLERGRIPT WORSTED-CARD BRUSHES

contribute to this impressive demonstration. Its tightly packed bristles push the wool — all the wool — down into the pins of the Morel clothing, leaving the burrs on top of the pins, free of fiber, ready for easy removal.

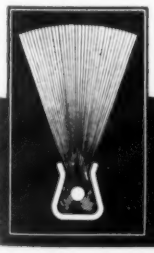
Fullergript brushes are proving helpful in three ways on worsted cards — as feed-roll brushes to start the wool properly in the teeth of the first lickerin, as Morel brushes to disentangle the burrs from the wool, and as Morel transfer brushes to carry the wool to the Morel roll and disentangle the burrs at the same time.

In all these applications the great density of the Fullergript bristles insures that the wool will be pushed into the clothing — not back into the brush! This means the brushes will not clog up rapidly, lose their efficiency and require cleaning — always a difficult, time-consuming job.

YES, its a new success story. Do you want to hear the others — on cotton-card brushes, for example? If so, write us and we'll gladly relate them to you.

Do You Want To Remove Burrs?

Look at the quantities pouring out of this worsted-card in a prominent New England combing plant.



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THIS IS NO. 48 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

BOBBIN CLIPS No. 90 WINDING MACHINE

A very large majority of filling bobbins can be wound on solid cop holders, rather than piano wire springs. This is done by using the Bobbin Clip which grips the butt end of the bobbin, holding it firmly on the Cop Holder.

Two standard types of Bobbin Clips are available:

REGULAR UNIVERSAL TYPE (A and B in Fig. 1)

This type is characterized by narrow prongs, made of special tempered steel springs, which grasp the bobbin securely, yet release it readily so that the bobbin is easily doffed. This reduces the hazard of skinned knuckles on the operator's fingers.

The Universal Type Clip is attached directly to the end of the Driving Spindle (not the Cop Holder) by means of two set screws, and is readily adjustable back and forth on the Spindle.

When necessary, a collar up to ¼" in thickness can be placed over the Cop Holder and adjacent to the end of the Spindle so that the butt of the bobbin will be properly positioned in the Bobbin Clip. Maximum winding area is thus obtained because no room is taken up on the Cop Holder for the Clip.

If a bunch is desired, it can be located at the extreme butt end of the winding space, thereby increasing the amount of yarn on the bobbin.

The Regular Universal Clip may be used with Northrup automatic loom bobbins or cone base bobbins. There are several sizes to fit the various bobbin butts. For small diameter bobbins or quills, a special collar is furnished, which allows the Clip to be placed directly on the Cop Holder — B in Fig. 1.

MURDOCK TYPE (C and D in Fig. 1)

This type fits directly onto the Cop Holder. Its gripping action is accomplished by the three broad steel fingers which are contracted by an endless coiled wire spring. Doffing is very easy.

It is necessary to locate the Murdock Clip in a definite position on the Cop Holder, predetermined by the point on the bobbin at which winding is to start. Thus some room is taken up on the Cop Holder which cannot be used for winding yarn; this may necessitate the use of longer Traverse Bars, Starting Levers, etc.

It is used for the Northrup three-ring bobbin as well as for worsted bobbins. A smaller size (D in Fig. 1) is used for paper cops with a metal ferrule on butt.

Ordinary paper cops require a Cop Holder with springs and a locating collar, and no clip is available.

Because there are thousands of kinds of bobbins, it follows that there are almost as many cop holders. The particular type of bobbin must therefore be fitted to its complementary cop holder. We are always glad to recommend the particular cop holder and clip to be used with any bobbin. We urge mills to ask us to do so.

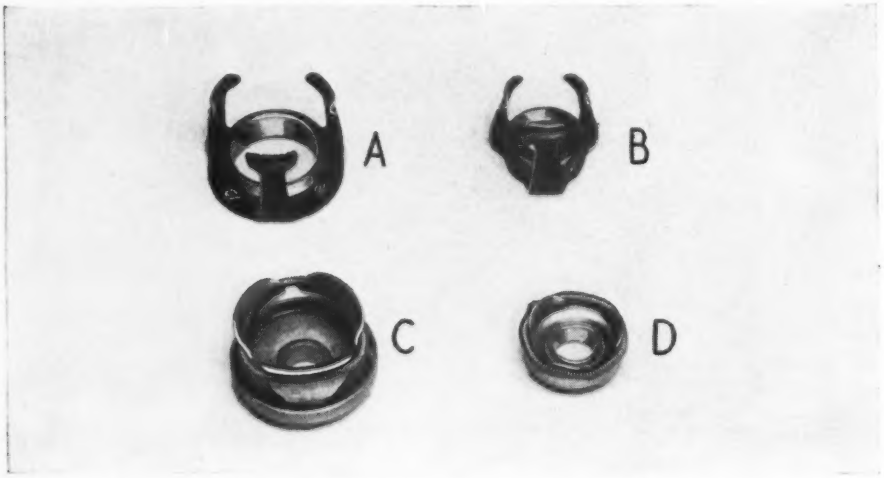
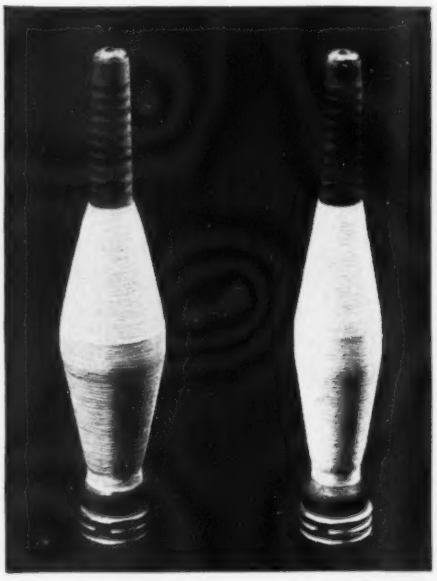


Fig. 1 Above: Universal Type Bobbin Clips. Below: Murdock Type Clips

AVOIDING SOFT NOSES ON FILLING BOBBINS

Over a period of years we have observed that — on the No. 90 machine, it is difficult to eliminate soft noses when the outside diameter of the yarn mass is *more than double* the diameter of the bobbin barrel.



OVERSIZE CORRECT

Fig. 2. Full bobbin diameter should not be greater than twice empty barrel diameter.

It is important to appreciate that there is a definite relation between the diameter of the bobbin barrel and the full bobbin which is noticeable in winding results.

Since the diameter, and hence the circumference of the bobbin, vary substantially as the yarn is being wound down the slope on the nose of the bobbin, the yarn speed is constantly changing.

Usually an overhead compensator or an overend reverse tension lever is employed to take care of this variance in winding speed and tension. When the Disc-Quill tension is used, there is no such compensation, but the applied tension is sufficient to prevent trouble due to slackening of the yarn.

However, in order to produce good firm bobbins, it is dangerous to permit the outside diameter to exceed a two-to-one ratio with the empty barrel diameter. This is particularly important when winding yarns such as nylon, which have a tendency toward a crushing action when being wound.

See our Catalog in TEXTILE YEARBOOK 23 43

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Can the work of card grinders, section men, fixers, and overhaulers be performed more efficiently under direction of a specialized maintenance superintendent or the regular production overseers?

WHAT DO YOU THINK OF THIS "SPECIALIZED MAINTENANCE" THAT IS BEING TALKED UP SO MUCH LATELY, PETE?
IT'S GREAT, BILL. IF WE CAN PUT OUR FIXERS AND OVERHAULERS ON SPECIALIZED JOBS, WE'LL STREAMLINE OUR WORK.
1
WELL, I'M FROM MISSOURI, PETE. I DON'T BELIEVE THEY WILL DO A BETTER JOB. THEY WILL BE HARD TO FIND. WHEN YOU WANT THEM AND MORE MACHINES WILL BE DOWN. HOW CAN THEY DO THE JOB ON ONE SHIFT? THEY MUST BE MAGICIANS, BECAUSE I NEED FIXERS ON ALL SHIFTS.
BILL, THE BASIC IDEA IS TO DO PREVENTIVE MAINTENANCE BEFORE A BREAKDOWN OCCURS. YOU'LL HAVE A FOREMAN AND CREW WORKING FOR YOU. AT FIRST YOU'LL HAVE SOME IDLE MACHINERY, BUT AS THE MACHINES GET IN BETTER SHAPE MOST OF THE UPKEEP WORK CAN BE DONE ON ONE SHIFT.
2
I HATE THE IDEA OF HAVING TO GET SOMEONE FROM OUTSIDE FOR CHANGE-OVERS. BESIDES I NEED A SECTION MAN HERE FOR EMERGENCIES
YOUR EMERGENCIES SHOULD BE AT A MINIMUM, BILL. WITH YOUR MACHINES IN TIPTOP CONDITION ALL YOU HAVE TO DO IS GET PRODUCTION AND QUALITY, AND HANDLE PEOPLE.
3
ANOTHER THING, PETE, IF I WANT MY SETTINGS JUST SO, AND THE MAINTENANCE MAN DOESN'T AGREE, WHO'S GOING TO HAVE THE FINAL SAY?
IF YOU TWO DON'T AGREE, THEN TAKE IT UP THE LINE. BILL'S JUST TRYING TO MAKE THIS NEW SYSTEM LOOK COMPLICATED, EH, JOE?
FELLOWS, THIS SPECIALIZED MAINTENANCE IS GOING TO BE HARD TO SELL TO OVERSEERS. I LIKE IT, BUT THERE'S A LOT TO BE IRONED OUT.
4 WHAT'S YOUR IDEA, FOLKS?

LETTERS TO PETE & BILL are paid for when published, without regard to length. We use letters (not over 200 words) discussing material in this department or any other pertinent matter. Contributions of greater than specified length may be given consideration as articles. Suggestions for the Pete & Bill dialogue are also welcome and if used will be paid for. If these pages interest you, contribute something to them to interest others. Address PETE & BILL, Textile World, 330 West 42nd Street, New York 18, N. Y.

Letters From Readers

Best Work in Best Condition

"Good Working Conditions"
(Pete & Bill, Sept. 1944)

Dear Pete & Bill:

The best and most reputable mechanics always maintain a good set of working tools, and it works the same way when good conditions are provided for the workmen.

Air-conditioning of cotton mills is the most human thing the industry could ever do, and the dividends will be in proportion to the investment. Better conditions will be provided which will be seen in better quality, reduced waste, better-kept and cleaner machinery and floors, and all these mean more units per man-hour, plus personal business contentment.

Like the contented cow producing more and better milk, humans respond equally as well. Dressing rooms, dining rooms or cafeterias, clean and modern tiled toilets, lockers, clean floors, uniform containers, and cool water are all helpful.

Provide the better conditions, and then watch your labor turnover lessen, the accidents decline, and the efficiency climb, and the quality improve. (PB 193)

What If Mill Village Operates at a Loss?

"Ownership of Mill Village"
(Pete & Bill, Oct. 1944)

Dear Pete & Bill:

So what if the mill village operates at a loss? Must every undertaking maintained for employee benefit and good-will pay directly in dollars and cents what management has put into it? The answer is emphatically, NO! Doesn't management usually sponsor clean rest-rooms, a plant magazine, occasional company parties, recreational organizations, bonuses, and even Social Security, all at direct financial loss to itself?

Yes, the intangible gain of having healthy, happy, productive employees far outshadows any expense put toward creating such good will.

Any company located in a rural district where workers must be brought in from other parts of the country will be amply rewarded for providing comfortable homes where employees may live at rents comparable to salary. Houses should not all be identical, should vary in size according to family size and income, should be spaced sufficiently apart to afford gardens and yards.

The worker should not be asked to purchase such a house for he may

MEMORIES OF OLD MAN CARELESSNESS—By Martha B. Pittenger

No. 23. Santa Got Hurt!

"And the stockings were hung by the chimney with care. In hopes . . ." Yes, the children had hung the stockings, all right, and Santa was there, sitting over in the corner by the fire with a painful expression on his face while he nursed two severed finger stubs.

The day before, Bill had lost two fingers when he closed the door on the card, while the cylinder was in motion. He has been stripping cards for several years, and had been told repeatedly never to attempt closing the door while the card was running.

But I was beside him that December day. I saw he was in a hurry. So I told him there was no need to waste time stopping the card for a little thing like closing the door. Besides, he could not put up an end as skillfully as the card tender. Why waste time? "Go ahead, Bill, the cylinder is a long way off," I suggested.

Bill listened to me, but the door did not close as quickly as it should. This made him mad. As he jerked it to, the cylinder made hash out of two fingers, leaving two stubs.

No, Bill will not be stuffing goodies into the children's stockings *this* Christmas. Bill's wife will have to pinch hit for Santa Claus, as well as for the bread winner, for a while.

suddenly have to move away for reasons beyond his control. He should not be so tied down financially, nor should the company attempt the real estate business.

But a pleasant mill village, company-owned and operated, will save the worker many weary miles of driving each day and bring far greater production when he knows his family is happy and well cared for. (PB121)

For Contented Workers, Vary Daily Routine

Dear Pete & Bill:

Much mill work must necessarily be routine, monotonous, dull. Anything to relieve that situation is a step toward more contented workers who stay on the job.

Occasionally, schedules could be adjusted to permit a worker to vary the routine just a little. And even a little helps so much! One of the best methods is to find, or create, small tasks where results are seen immediately. This gives the worker a sense of having accomplished something personal and worth while.

It may be no more than distributing safety literature or teaching a new hand how to perform some duty more efficiently, but the boost to the worker's morale will repay three-fold any slight loss of production during the time a substitute is handling his routine tasks. (PB120)

Book Reviews

Guide in Selecting Overseers

HOW TO SELECT FOREMEN AND SUPERVISORS, by R. C. Oberdahn; National Foremen's Institute, Inc., Deep River, Conn.; 53 pages; $2.00.

This book brings together the ideas and necessary procedures the executive in charge of personnel should know when hiring overseers and supervisory help. Such subjects as what is a foreman, duties of a foreman, method of selecting foremen, and tests are covered.

A Guide to Electronic Controls

INDUSTRIAL ELECTRONIC CONTROL, by W. D. Cockrell; McGraw-Hill Book Co., 330 West 42nd St., New York 18; 247 pages; $2.50.

Of assistance to textile engineers are the numerous circuits and controls outlined in this book, which he must service in his plant. The book is divided into four sections, these being electron tubes, circuit components, basic electronic circuits, and industrial electronic circuits. This last section covers d.c. photoelectric and motor-control circuits, a.c. relay and power circuits, and resistance welder controls and welder-current regulating.

Rayon—Its Development and Its Uses

SURVEY OF DEVELOPMENT AND USE OF RAYON AND OTHER SYNTHETIC FIBERS, by Robert B. Evans; U. S. Dept. of Agriculture, Southern Regional Research Laboratory, New Orleans, La.; 77 pages.

A brief review of the development of rayon is supplemented with tables and charts showing the growth of rayon in this country and abroad over a period of years. Present sources of raw materials for rayon are covered, and a section is devoted to factors influencing the uses of rayon. Relative consumption of rayon and other fibers for specific uses, and fabrics and products in which rayon is not already used, are discussed. Reasons for not using rayon extensively in certain classes of fabrics are given.

Other synthetic fibers than those with cellulose ball are mentioned and their postwar possibilities covered.

NO "Snowballs"...NO STICKY DROP WIRES

SUNOTEX OILS

Provide Softer Warp . . . Save 5 to 10% In Slashing Costs

In slashing rayon warp, a New England fabrics manufacturer encountered difficulties with harsh warp . . . sticky drop wires . . . and the formation of "snowballs." He suspected that these troubles were caused by the softening oil which was being used and called in a Sun Engineer for advice.

As a result, Sunotex Oils were adopted and used with a well-known gelatin for size. Not only were the particular difficulties experienced with his previous softening oil overcome, but several other valuable benefits were secured.

A much better and more even warp was obtained, because Sunotex conditions the warp all through. This makes for better weaving and no ends down. He also was able to reduce his slashing costs 5% to 10%.

The Experience of Sun Engineers, in working with hundreds of textile mills on such processing problems, has led to the development of an outstanding line of textile oils. These products, combined with Sun Engineering experience, may be able to help you lick a difficult problem. A letter will bring a Sun Engineer to your plant.

The New Sun Lubrication Manual is a valuable handbook for any lubrication man. It contains dozens of proved suggestions and rules for "Getting the Most Out of Lubricants." A copy may be obtained, without cost or obligation, by writing to . . .

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Round Table

FOR EXCHANGE OF IDEAS

The Round Table is designed to supply a meeting place where mill men can discuss problems among themselves. It is open to all readers for discussion of subjects relating to mill management and operation. Names of contributors to the Round Table will be held confidential if so requested, but sign contributions with your real name and address as evidence of good faith and to permit payment for items published. Address contributions to: Editor Round Table, Textile World, 330 West 42nd St., New York 18, N. Y.

Australia Offers Help On Picker-Stick Problem

On reading the paragraph "Working to Ease Picker-Stick Situation" on page 204 of the April, 1944, issue of TEXTILE WORLD, the weaving manager of Prestige Fabrics, Ltd., in Australia sought permission for information on new sticks to be made available to the American textile trade so that an alternative to hickory sticks might be developed there and prevent a drop in production of textiles. The information on materials and technique used in Australia has been forwarded to the director of Forest Products Laboratory, Madison, Wis., for the information of the American textile trade. It follows:

When Japan attacked Pearl Harbor the supply of hickory picker-sticks, which had been causing Australian weaving firms some concern, became acute and many plants turned to Australian timbers as substitutes.

Unfortunately, the Australian trade was not organized to supply timber specially selected for a purpose in which suitable mechanical properties are fundamental to successful use, and

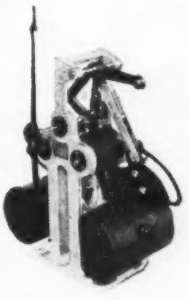
MEET YOUR *hidden losses* FACE TO FACE IN

WEIGHING...COUNTING
BATCHING...MEASURING
TESTING...INSPECTING

"Hidden losses" creep into your production costs every time a scale operator is forced to "guesstimate" a weight reading. When high, bulky loads obscure the scale dial face, time is lost, materials wasted and mistakes made. When faulty lighting prevents hair-line weight readings, "hidden losses" cut into profits.

To help you meet these "hidden losses" face to face, every Kron precision dial scale is equipped with the exclusive Kron Swivel Dial. The entire dial head rotates smoothly and freely through a complete circle in either direction at absolutely no loss of scale accuracy. At the operator's convenience, the Swivel Head can be turned to any desired position for a clear, unobstructed, accurate view of the dial chart and pointer.

Only Kron brings you this modern weight reading feature. Discover how its advantages will cut costs for you. Write to The Yale & Towne Manufacturing Company, Philadelphia Division, Philadelphia 24, Pa. and ask for your copy of the new catalog of Kron Scales made by Yale.



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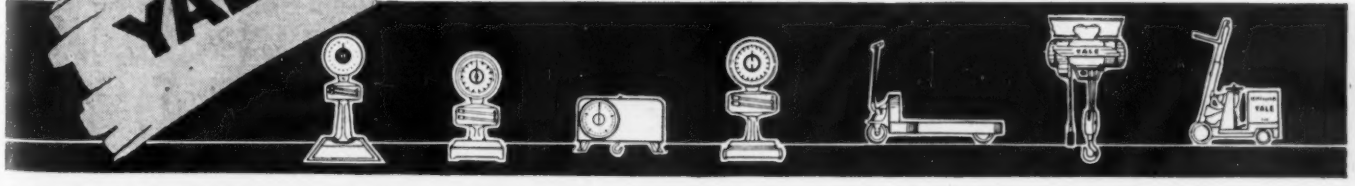

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much of the timber used was brittle or otherwise defective. Furthermore, many of these sticks were badly shaped and roughly finished. Stress concentrations resulted in early failure.

In 1943 when the weaving manager of Prestige Fabrics, Ltd., Melbourne, Victoria, sought advice and assistance in overcoming the problem of picker-stick supply, consideration was given to the potential suitability of improved or compregnated wood—laminated and compressed wood bonded with synthetic resin. Loom tests have shown that satisfactory sticks finally were developed with the result that this firm is installing throughout its plant sticks of the new type. In addition, orders for new picker-sticks placed by other firms are being filled by a Sydney manufacturer.

The following quotation from a letter from Prestige Fabrics, Ltd., indicates the satisfaction which laminated sticks are giving and incidentally suggests other parts of looms where improved wood might advantageously be used:

"Early in the year 1942 there was an acute shortage of suitable timber for the making up of picking sticks, the timber used for this purpose being imported from the United States.

"We were running very low in picking sticks with the result that we started to experiment with native timber. We cut the sticks at all angles from blanks, but approximately 98% lasted no longer than 30 hr., and a few broke after running only from 6 to 12 hr.

"By this time the position was very serious, and, not knowing what to do, we approached the Council for Scientific & Industrial Research and asked them if they could recommend a suitable timber obtainable here in Australia. We submitted to them a number of sticks of native timber in order that they could see how the sticks broke.

"After a lapse of several weeks the C.S.I.R. submitted to Prestige Fabrics 10 picker sticks, and at a later date five more were submitted. We will call these sticks *A*, *B*, and *C*. . . .

"The sticks in group *A*, of which there were five, ran for approximately 1,500 hr. each, one of them being on a loom for over 2,000 hr. The sticks in group *B* averaged 1,000 hr. and those in group *C* were very poor, with an average of 12 hr., two of them breaking within one hour after being installed on the loom.

"The writer realizes that a laminated picker stick is approximately 60% heavier than an ordinary hickory picker stick, but, with slight re-adjustment

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ALSIMAG FOR THREAD GUIDES is your *ultimate shift* for dependable production. No lost time replacing worn out guides. No idle machines.

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Modern-improved ALSIMAG 192—*one shift forward—no further shifting required.*

Write today for bulletin, "Facts About ALSIMAG 192 Patented Thread Guides," for detailed information and physical characteristics.

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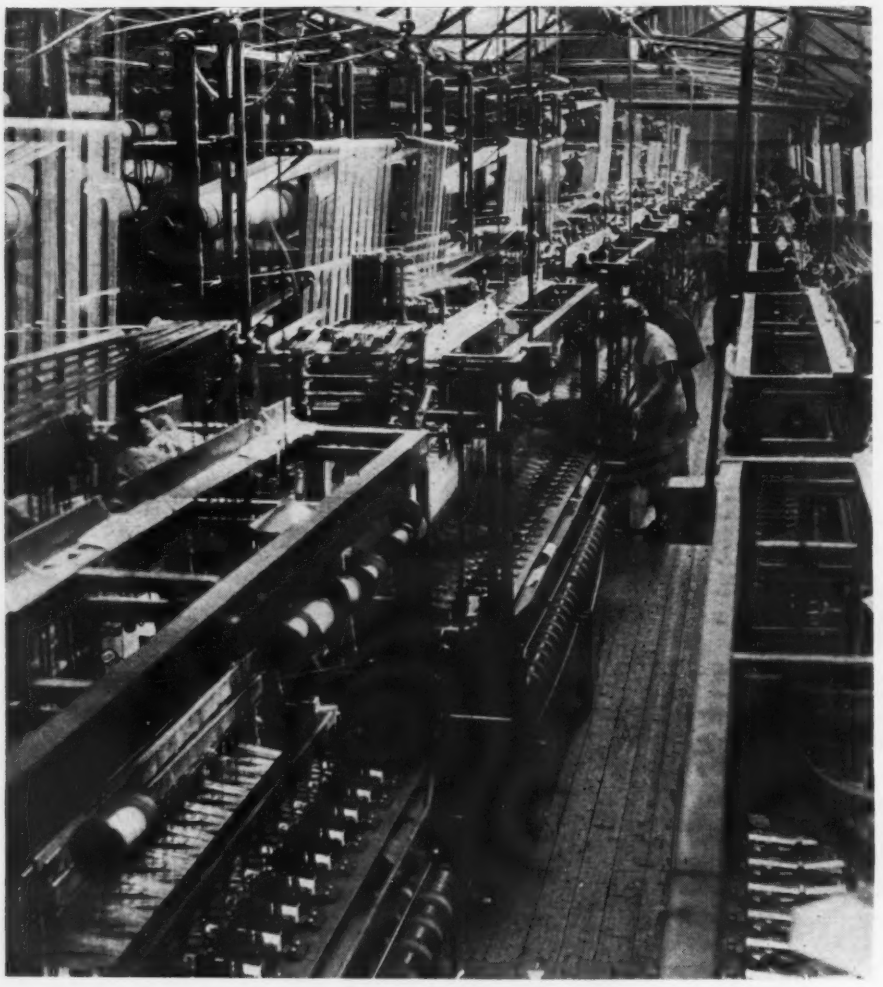
ALCO has been awarded for the fourth time the Army-Navy "E" Award for "continued excellence in quantity and quality of essential war production."

CLUTSOM HIGH SPEED SHUTTLELESS LOOMS



A Battery of Clutsom High Speed Shuttleless Looms

"A WORD TO MANUFACTURERS OF NARROW WEBBING"

This is a sellers market but tough competition will sooner or later come again.

In good times you want all the production you can get, in bad times you must have production at its lowest cost.

More webbing per operator than any other type of narrow fabric looms is the answer in either case. CLUTSOM HIGH SPEED SHUTTLELESS LOOMS are proved low cost producers in varied installations all over the world. Think now of post war prospects and take into account the merits of CLUTSOM HIGH SPEED SHUTTLELESS LOOMS.

We will gladly demonstrate the machine for you. Early delivery assured.

CLUTSOM MACHINES INC.

205 EAST 42 STREET **NEW YORK**

Telephone MUrray Hill 4-2327 **FACTORY: Springdale, Connecticut**

on the loom, has had excellent results; so good that we have equipped our complete plant with the laminated picker sticks.

"At the present time we have eight sets of wooden binders from the same material, which now have a total of over 2,000 hr. running, and we have not had occasion to remove same from the loom to polish them. At the same time, the hardness of the laminated binder has had no effect whatsoever on the shuttle. Another use we have found for the laminated timber is for making sweep arms.

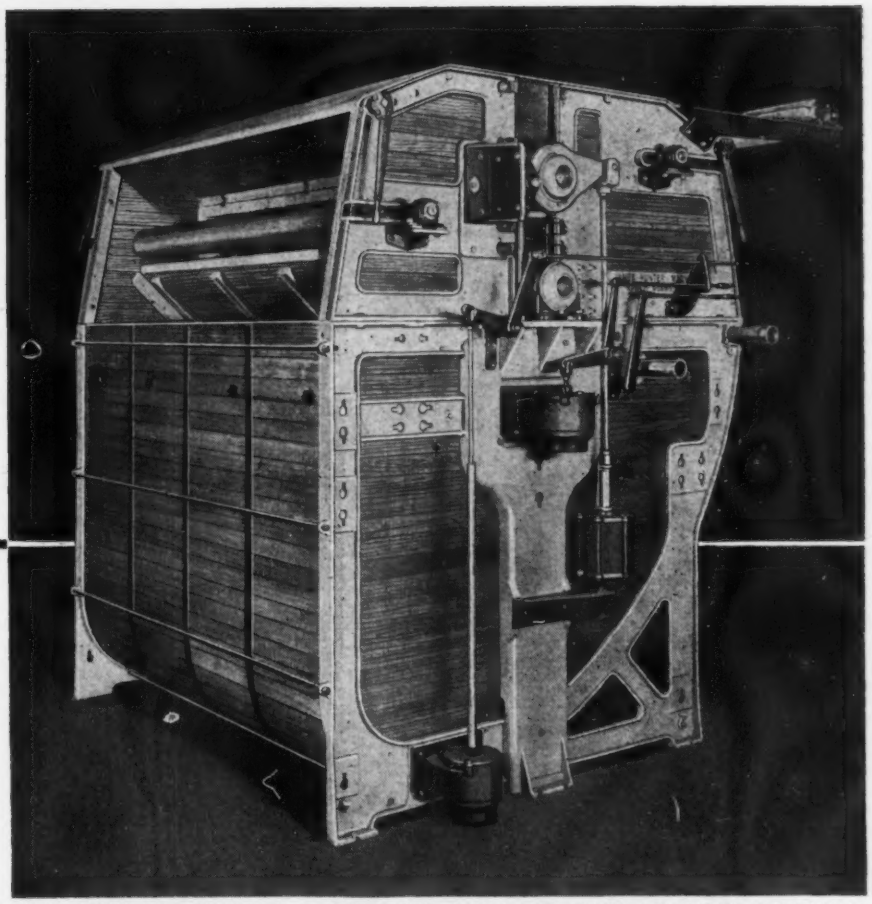
"Two very important points must be watched by the loom fixer, first to have good bumper straps on the looms at all times, and second to replace pickers before the rivets touch the sticks." *(R-94)*

Fabric Defect Terms Explained by Author

In reply to the criticism by *R-90* covering definitions given for woolen fabric defects in the May issue of TEXTILE WORLD, please bear in mind that some localities have terms that differ from others. Taking the illustration of the light places, it is correct that this is a mispick or a broken pick together with the light place. It is stated that the light place looks like shifted ends. If the ends had been shifted, they would have been lengthwise on the cloth, not across the cloth.

On some coarse and loosely woven fabrics, light places can be caused by the loom knocking-off without the filling breaking, or by the loom standing overnight. You will notice that an old-time weaver, especially on loosely woven cloths, will let a few teeth off every morning.

Regarding the mispick illustration, my critic states that the pattern chain is off one pick and repeats later in the sample. This is a four-harness twill and no boss weaver would make a chain more than eight bars (or even a filling chain more than the number of shuttles) to repeat the sequence of the filling. As it happens, both of the mispicks were deliberately made and the chain was never touched nor moved in any way. On a broken pick, a weaver can find the loose pick by reversing the head motion. The definition for a double pick is correct and the illustration shows two picks in one shed. Even on a plain weave, a broken pick or a mispick will look like a double pick. This is an illustration of a four-harness twill. A double pick



THIS NEW HUNTER MODEL L WASHER HAS REDUCED NEUTRALIZING TIME BY 66⅔% — SCOURING TIME BY AS MUCH AS 50%

The machine illustrated here is an entirely new conception of Cloth Washer design and performance. It is unlike other known Washers in that it utilizes as main rolls, tremendously heavy, pneumatically operated rubber squeeze rolls affording pressures up to ten tons on each bearing.

In current installations, it has reduced indigo neutralizing times as much as 66⅔%—scouring and rinsing cycles by as much as 50%. In one Pennsylvania mill, only two of these Model L units are scouring and neutralizing the mill's entire production of 90,000 yards per week.

Equipped with heavy air-operated pressure rolls, free-flowing gates, new type swivel suds box, float indicators, special adjustable guides, roller bearings throughout, etc., the Model L warrants the careful investigation of any woolen or worsted mill management. You can get full mechanical details and certified production performance records by writing to the James Hunter Machine Co.

JAMES HUNTER MACHINE CO.
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FOUNDED 1847

BANK-TALK? No. And not bunk-talk, either. SPEEDI-DRI is the white, granular substance you spread on oily, greasy floors by hand . . . then clean-up with a stiff broom. Immediately upon application, it forms a non-skid surface. Then, like a blotter, it goes to work on the most deeply ingrained oil deposits* and absorbs them, leaving the floor clean.

SPEEDI-DRI is modern, efficient, economical. It does away with expensive machinery, dangerous caustics, and back-breaking labor. Scientific, unbiased tests prove that pound for pound SPEEDI-DRI is more effective and less expensive than any other product designed for the same use, when all-around effectiveness is considered. SPEEDI-DRI is bought by the ton by many of the leading textile mills to keep their floors clean, their workers safe. Write for literature and FREE SAMPLE.

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SPEEDI-DRI
OIL AND GREASE ABSORBENT

"Think First—Stop Accidents"

is not a pick of two-ply yarn woven across the cloth. A double pick is two picks in a shed.

Please look at the cloth with warp-ends broken. You will notice that the top center of the cloth is perfect. The end is broken and the photograph shows where it was broken. A wrong draft occurs when an end has been put back incorrectly after being broken and then does not follow the sequence of the pattern. In the illustration you will find the end is missing.

This cloth is not a serge but a woolen, a four-harness twill. Each of these defects shown was made to illustrate the defect to the best advantage. Please bear in mind that all these defects could not be fixed even by a good mender. *(R-91)* Fred Sykes

New Methods Needed to Combat Competition

It is anticipated that when present world hostilities are ended, world-wide industrial developments will follow shortly.

Foreign countries, struggling along with low living standards, are expected to make determined efforts to establish industrial economies. They hope to achieve self-sufficiency through greater production per wage earner, and ultimately to attain higher standards of living.

Naturally, production of cotton and its subsequent conversion to yarn and cloth constitute a major item of any such industrial program.

Manufacturing facilities and delivery schedules permitting, new spinning and weaving mills will be installed all over the world; and it is likely that some countries not now doing so will begin the manufacture of spinning and weaving machinery.

During the entire existence of the cotton industry, this country has never been without competition from other countries in the production of cotton, textile goods, and textile machinery.

Within recent times, many American mills have suffered hardship through competition of Japanese textiles. The combination of cheap, though efficient, machinery and low-cost Japanese labor enabled Japan to sell merchandise in the United States at less than local manufacturing costs. Future prospects indicate that this condition may grow worse, rather than better.

To meet and to overcome this impending foreign competition, the cotton industry needs new and more efficient methods for the production of cotton goods.

The cotton industry ranks high

Secret Agent

NO SECRET TO YOU—but the charming lady who bought this modishly tailored suit never even suspected that a processing agent had a lot to do with its style appeal. For the designer who created it could never have achieved the style appeal that sold it unless the material had been properly processed. That's why so many of America's leading mills, converters, finishers and dyers have turned to Colgate-Palmolive-Peet for high-quality wetting, fulling, scouring and dispersing agents.

There is a C.P.P. soap or synthetic detergent for every fabric—for every processing problem. Ask your local Colgate-Palmolive-Peet representative for detailed information on the full line of C.P.P. processing agents made specially for the textile industry. Or, write to our Industrial Dept. at Jersey City 2, N. J.

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DON'T WASTE SOAP . . . vital materials needed to win the war are used in making soaps.

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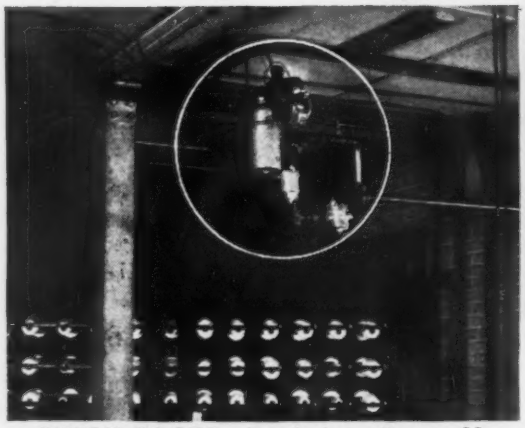

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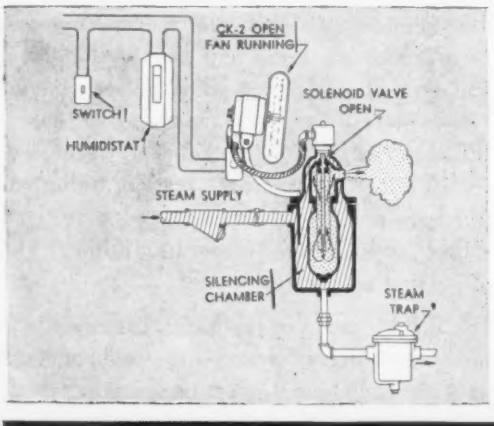

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among American industries. It is third with respect to number of wage earners employed and is included among the first ten in dollar volume. It is one of the oldest.

This last fact is important to note, for it is responsible to great degree for the method of cotton processing and the machines employed for this purpose. The major part of the machinery used for spinning and weaving today is based upon inventions made one hundred or more years ago.

True enough, there have been added improvements, such as long-draft systems and automatic devices. But, in principle, there has been very little change in machine design and methods of operation. As a consequence, spinning and weaving machinery all over the world is very much the same in appearance and in operation. Therefore, as far as machine equipment is concerned, no one country has any great or permanent advantage over any other country.

A unique and distinctive feature in regard to textile machinery is that the labor required for its operation requires but little strength and technical skill. Thus, a condition is created that is disadvantageous to countries like the U. S., where enlightened legislation prevents the employment of children and where living standards call for high wages.

Since labor costs are important items in the cost of yarn and cloth, countries with low living-standards can produce these items at less cost than can this country. Thus, the condition exists where about after half the cotton grown in this country is exported to foreign countries which manufacture it into consumer goods, some of which are then imported back again into this country.

This unpleasant state of affairs, I think, is the direct result of cotton processing procedure.

The custom of ginning the cotton and then putting up the lint into 500-lb. bales for shipment makes it necessary for all spinning mills to go through the same procedure of opening the cotton, regardless of whether these spinning mills are located adjacent to the cotton fields or in far-off Japan where no cotton ever grows.

Through custom and habit, this country, which because of fortuitous circumstances is able to grow fine cotton, unconsciously and unwittingly through adherence to tradition puts itself into competition with other countries in the production of cotton goods.

Under normal conditions, a country which is able to raise and produce a

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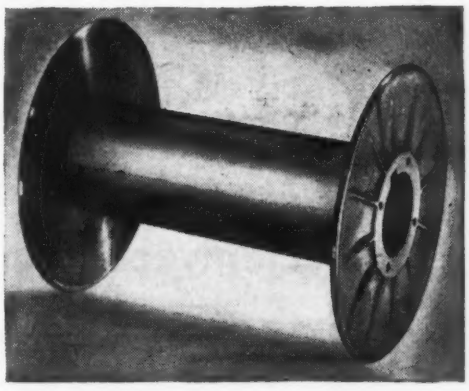

Removable, interchangeable flanges offer these advantages: (1) heads or barrels may be salvaged if necessary; (2) conversion costs to larger size flanges are held to a minimum; (3) length of beams may be altered at little cost to meet production requirements.

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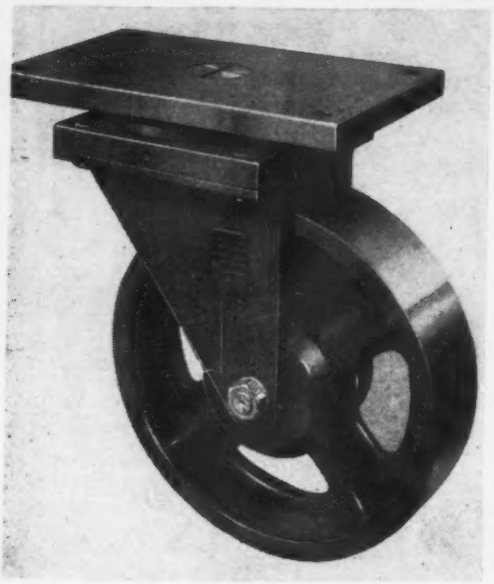

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special and essential commodity, such as cotton, should find itself better fitted to process this commodity than other countries not able to grow it, countries which must add freight, insurance, and other charges to the cost of their finished goods.

Therefore, to overcome the competition from low foreign labor costs, a method should be developed whereby the cotton is passed from gin directly to spinning machinery, thus we can derive a direct benefit by raising the cotton since we can eliminate the cost of opening operations.

The change in methods and machinery through the elimination of the baling process is not radical in its nature and can be accomplished with no serious dislocation nor revolutionary changes.

The effect of such changes should prove highly beneficial to the cotton industry. It reduces costs of yarn, it offsets the low wage scales of foreign countries, and it holds forth great possibilities for the greater export of finished cotton goods in place of raw cotton.

Many new apparatus and new machines have been invented in which recent improvements and discoveries are embodied. In consequence of this, mass production of all types and varieties of goods and machines are produced at costs so low that these products are sold all over the world. During all of this time, the design of textile machinery has changed but little.

The time is at hand for the development of spinning and weaving machinery that will include in its design provision for the manufacture of yarn and cloth on a greater mass-production basis. This would provide for continuous flow of materials, with labor employed more for supervisory purposes than merely as machine attendants.

It may be of interest to observe that it required almost one hundred years before the cotton-growing South discovered that not only could cotton be raised in the South, but also it could be spun and woven in the South as effectively and as efficiently as in the North.

By the same token, will it take the cotton industry another one hundred years before it can improve on present methods?

To proceed seriously to study and investigate this problem may bring good results. To do nothing will only intensify the potential threat of more competition from other countries all over the world. *(R-93)* William J. Shore, Engineering Consultant.

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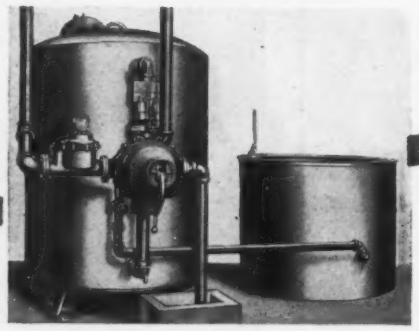

It is estimated that more than 60% of the returns encountered in bleaching, dyeing and finishing plants are due, directly or indirectly, to the use of raw water or water that has not been properly treated. Rust stains, oil stains, sad or dull shades on dyed goods,—these are just a few of the troubles which can be traced to improperly conditioned water. Iron, hardness, turbidity, Algae, and other factors all contribute to these troubles. Refinite Water Conditioning equipment, specially designed to meet YOUR particular needs, will eliminate these factors—and the accompanying troubles. Write Refinite today! There's no obligation. Refinite laboratory and technical service is at your command.

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Questions AND Answers

Glazed Chintz

Technical Editor:

Can you advise me if chintz can be glazed without the use of a friction calender. If such a process is possible, is the finish permanent to dry cleaning? What are the mechanics of application? (9017)

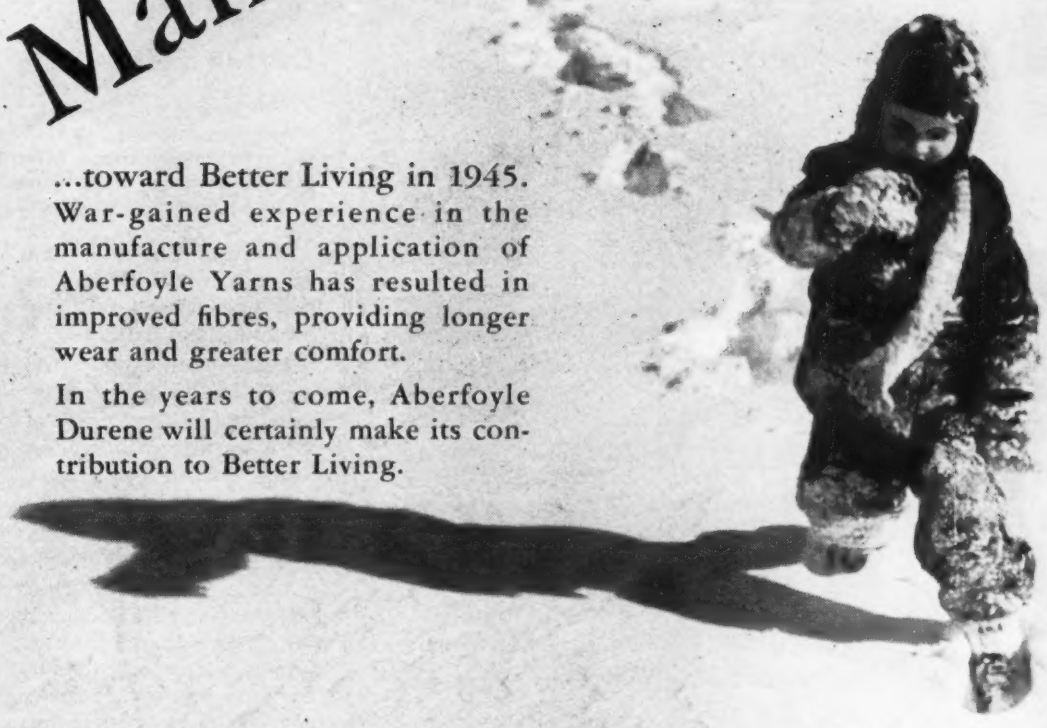
A glazed finish on chintz, or other fabrics, has, up to the present time, only been produced in two ways; the first, by impregnating the cloth with various starches and sulphonated oils, etc., which are dispersed in water, drying, and then friction-calendering. Of course, these substances are removed, once the fabric is washed; and even if dry-cleaned, a large portion of the glazed effect is also taken away.

It is possible also to give a relatively permanent finish to cloth by the use of urea-formaldehyde or melamine resins. These materials are also applied from a water-solution, padded on the cloth on a conventional type padder and dried at low temperatures to avoid polymerization of the resin. At this stage, the goods are then friction-calendered, cured at an elevated temperature to set the resin, washed, and dried. In general, the resins do not give quite as high a gloss as is obtained when starch is used, but this gloss is relatively permanent to both laundering and dry-cleaning.

The second way of obtaining the glazed effect is by coating the cloth, on suitable coating machinery, with nitro-cellulose or certain other synthetic resins, dissolved in a solvent medium. The effect obtained is relatively permanent to both laundering and dry-cleaning, provided the resins used are not soluble in dry-cleaning solutions.

This procedure requires special application machinery and drying equipment, as well as proper safe-guards against fire and explosion hazards. For further details of this method of application, we are pleased to refer you to the series of articles, entitled, "Machines and Methods for Plastic Coatings," by J. B. Cleaveland, which

Making Progress..



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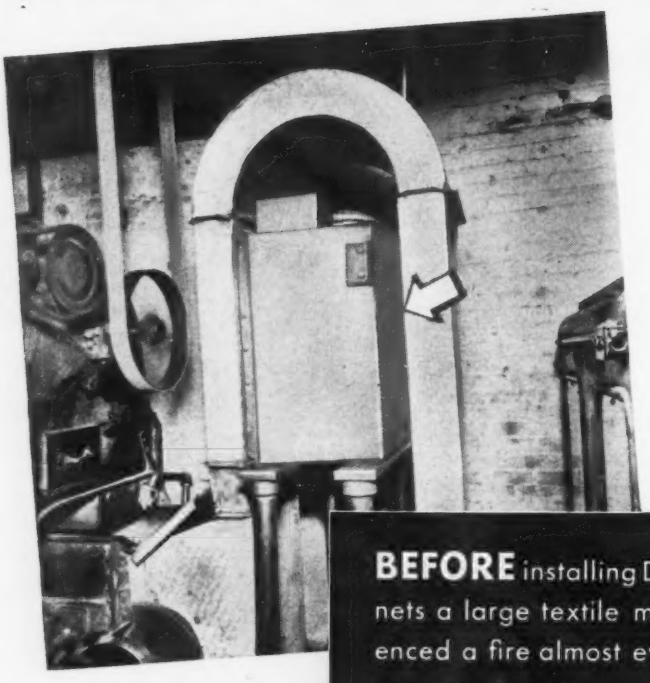

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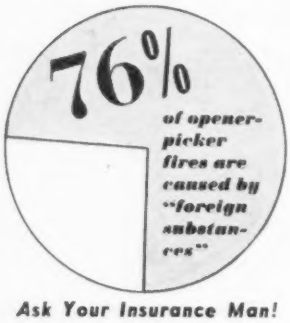

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Dings MAGNETIC SEPARATION HIGH INTENSITY

appeared in the March, May, June, and July, 1944, issues of TEXTILE WORLD.

At the present time, none of the synthetics mentioned are freely available for commercial work, most of them being under allocation. We know of no way now whereby glazed effects can be produced, other than by the two procedures outlined above.

Cotton Felt

Technical Editor:

We are interested in information on manufacturing a cotton-linter felt. Also, can you advise us if standards have been set up for this type of felt. (9018)

We would be in a much better position to answer your inquiry if we had a sample of your felt and also knew the end use of this felt.

Undoubtedly you are referring to a woven felt using a cotton warp spun with a fairly good grade of cotton on the conventional or on the long-draft cotton system, and using filling made of linters and cotton-mill waste, such as fly and sweeps mixed with good cotton of longer staple.

The manufacture of such felts can be carried out on a conventional cotton spinning system, as far as the warp is concerned; but for the filling the fibers must be cleaned, garnetted, blended, and carded to form a sliver, which is then made into a roving of the size required for the particular felts wanted. Some mills make this felt on a modified woolen system which produces a very soft filling yarn and one of a different character from regular cotton-process rovings.

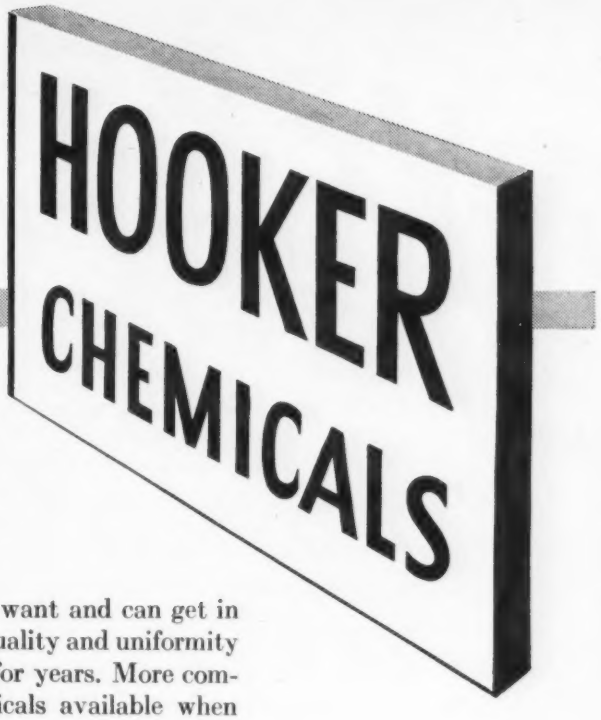
The American Society for Testing Materials has not set up standards covering this felt.

Immunizing Piece Goods

Technical Editor:

We would appreciate it if you could give us some hints on how to immunize cotton piece fabrics so they wouldn't have an affinity for direct and acetate dyestuffs. (9005)

Much information has been published in regard to the dyeing of immunized cotton yarns, but none, as far as we know, on immunizing piece goods. Furthermore, this inquiry is complicated by the fact that the inquirer wishes to immunize so that the fabric would have no affinity for either direct or acetate dyestuffs. It seems that this cannot be done, because the immunizing process creates a cotton ester which does not have affinity for



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Below are listed some of the Hooker chemicals that you want and can get in the quantities you need. All are of the same Hooker high quality and uniformity that have been pleasing dye and textile chemical buyers for years. More complete information on these and the other Hooker chemicals available when requested on your letterhead. Hooker's technical staff is also ready now, as always, to give you help in the use of Hooker chemicals.

PRODUCT Chemical Formula • Molecular Weight	DESCRIPTION	SUGGESTED USES
Aluminum Chloride, Anhydrous $AlCl_3$; 133.3	Gray crystalline solid.	Catalyst; dye making.
Antimony Trichloride, Anhydrous $SbCl_3$; 228.1	Yellowish solid.	Catalyst; dye making; mordant in textile printing; moisture and fireproofing textiles.
Benzoate of Soda C_6H_5COONa; 144.0	White crystalline solid.	Dye intermediate.
Benzoic Acid C_6H_5COOH; 122.1	White crystalline material.	Dye intermediate.
Cyclohexanol (Hexahydro Phenol) $C_6H_{11}OH$; 100.1	Clear, colorless liquid.	Solvent for dyes.
Sodium Sulfhydrate NaSH; 56.1	Light yellow colored flake material, 70 to 72% NaSH.	Dye stuff intermediate; desulfurizing rayon.
Sodium Sulfide Na_2S; 78.1	Light, salmon colored flake material, 60 to 62% Na_2S.	Desulfurizing rayon; calico printing; in sulfur dye baths.
Sodium Tetrasulfide Na_2S_4; 174.23	Aqueous solution containing 40% by weight of compound. Dark red liquid.	Manufacture of dyes.
Chlorparaffin 20 $C_{25}H_{46}Cl_6$ (aver); 559	Amber colored viscous liquid, 40% chlorine.	Treating fabrics to render water repellent, and mildew proof.
Chlorparaffin Resin 70 $C_{24}H_{29}Cl_{21}$ (aver); 1063	Brittle resin, sold in white powder form. 70% chlorine.	Treating fabrics to render water repellent, and mildew proof.

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the usual dyestuffs used in cotton, but does possess affinity for acetate colors.

Immunizing is very often done on yarns, by dyeing with conventional cotton dyestuffs, such as sulphers, vats, etc., on the yarns first, and then applying the immunizing treatment afterwards.

Use of Chlorinated Hydrocarbons in Finishing

Technical Editor:

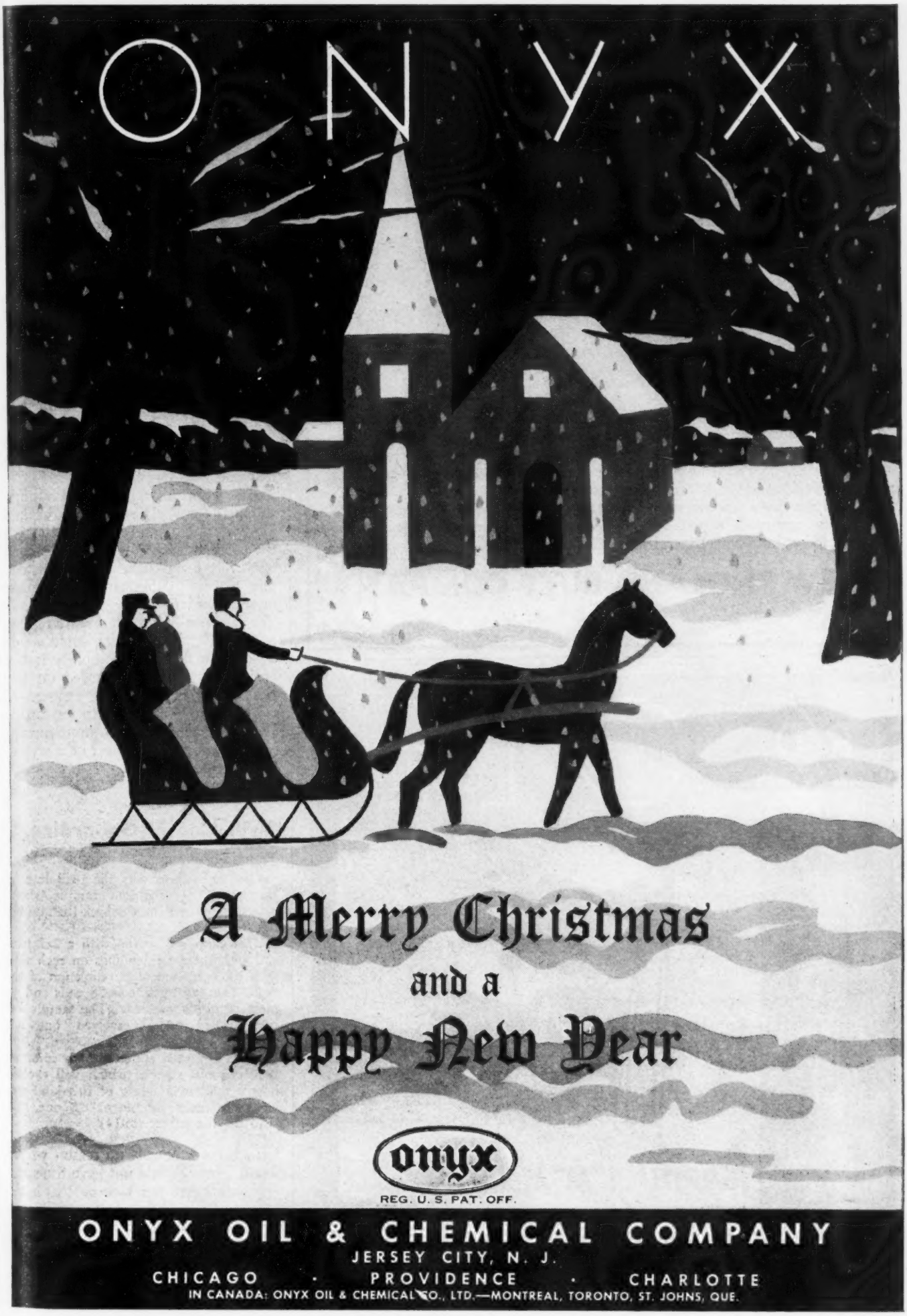
Can you advise me whether chlorinated hydrocarbons were used prior to the present war for flameproofing textiles?

How long has ammonium sulfamate been used for flameproofing? Is it open to the same objection in connection with water solubility as the inorganic salts used for flameproofing?

Would it be correct to say that prior to the present war no textile flameproofing agents were used commercially which would withstand the action of rain from the standpoint of their water solubility. Any references you feel you can give in the above connection will be appreciated. (9019)

Referring to your question as to whether or not chlorinated hydrocarbons were used, prior to the present war, for flameproofing textiles, I am not in position to give you a definite statement. To my knowledge, chlorinated hydrocarbons were not used to any great extent commercially in the flameproofing of textiles, before the present war. Some of the Hooker patents do date back to 1937 filings, and I believe that they were doing some flameproofing prior to the war, in which they may have used chlorinated naphthalenes of chlorinated paraffin. I believe at that time that all of the chlorinated paraffin was probably made by Hooker Electrochemical Co.

In the Spring of 1941, the Army became interested in the flameproofing of tentage and started an investigation and research program. The outgrowth of this was the development of the various flameproofing compounds as used today, most of these being based upon chlorinated paraffin and antimony oxide. Since the program originated in 1941, there have been such large improvements in the make-up and manufacture of flameproofing compounds that some of the treated fabrics being turned out today bear little resemblance to the earlier treated materials. Much of the early material, which also involved the use of chlorinated rubber, was quite "tacky", in addition to being very stiff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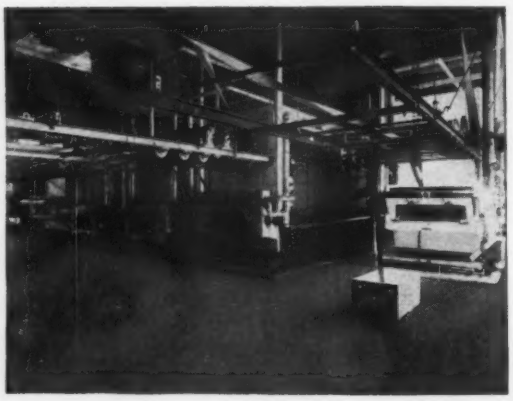

The New England Butt Ager and its strikingly modern features are outstanding in the units illustrated above. Of the machines shown three were furnished by us new, two were overhauled with our new ball bearing roll housings and drives, and one was equipped with our entering chamber.

Space does not permit a detailed description. Why not write us for complete data? We feel sure that the details concerning the New England Butt Ager will interest you.

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and crocking badly. Fabrics are now being produced that are as soft as the gray goods, have a dry finish, and have excellent crock resistance.

Another concern which participated in the early development of the chlorinated hydrocarbons was United Carbide and Carbon Corp., through their Halowax Products Division. A third company manufacturing these products is the Hercules Powder Co.

Morton Chemical Co., Greensboro, N. C., has developed an emulsion-type coating that makes the treatment of these fabrics in regular textile finishing plants safe. It has shown extremely good characteristics in every respect. This emulsion is made up with a solvent and water, applied in a padder, after which the goods are dried. This one operation colors the fabric and renders it flame, water, mildew and weather-proof.

The writer first knew of ammonium sulfamate for flameproofing around 1939 or 1940, and believes that its use as a flameproofing agent was comparatively new at that time. It is certainly open to the same objection as many other inorganic salts, in that, like practically all ammonium compounds, it is extremely soluble in water. In fact, this solubility is one of its advantages when used on fabrics that are not to be exposed to weather, since large quantities can be added to such fabrics without imparting objectionable stiffness or a crystalline surface deposit.

Twill Line in Gabardine

Technical Editor:

Can you tell us why the twill line on the attached gabardine sample shows more prominently on the back than on the face?

This cloth was woven with a 2x2 twill and with the same bindings on each side, with the exception of the direction of the twill. The construction is 78 ends and 44 picks of 1/20s worsted. The sample has been fulled and piece-dyed but not sponged.

We will greatly appreciate any information you can give us which will explain how a twill in a fabric of this kind can be made more prominent on one side than on the other. (9014)

In theory there is no reason why a 2 and 2 twill should not have the same appearance on the face as the back, with the exception of the twill running in a different direction.

In this case the sample shows that the fabric is unbalanced; that is, there are more warp ends than picks.

Under a glass the fabric has the ap-

Highballing along!

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Furthermore they empty rapidly and safely. No loss of time, no loss of effort, no loss of Caustic Soda.

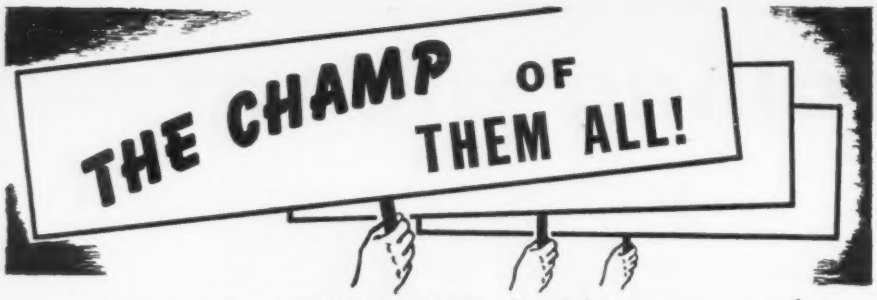
Available as 50% and 72-73% solution in liquid form in tank cars. In 750 lb. drums in solid form. In 125 and 400 lb. drums in flake form. Consult our technical staff, without obligation, for aid in handling problems. For further information about Penn Salt Caustic Soda, write us.

TO THE TEXTILE INDUSTRY PENN SALT SUPPLIES

- Caustic Soda
- Sodium Hypochlorite
- Sulphuric Acid
- Carbon Bisulphide
- Hydrogen Peroxide
- Soda Ash
- Hydrochloric Acid
- Ammonium Persulphate
- Anhydrous and Aqua Ammonia

PENNSYLVANIA SALT
MANUFACTURING COMPANY
Chemicals
1000 WIDENER BUILDING, PHILADELPHIA 7, PA.

New York • Chicago • St. Louis • Pittsburgh • Cincinnati • Minneapolis • Wyandotte • Tacoma



You've heard of DIASTAFOR de-sizing agent . . . the leader in its field for 36 successful years. You know it must be good, for it's the choice of outstanding chemists and mill-owners. So—why not try DIASTAFOR yourself?

See how DIASTAFOR produces an ideal finish . . . gives flawless results . . . solves your de-sizing problems. See the big difference DIASTAFOR makes. Try the champ of them all—*try DIASTAFOR.*

For further information, see our technical man or write to—

FLEISCHMANN'S DIASTAFOR

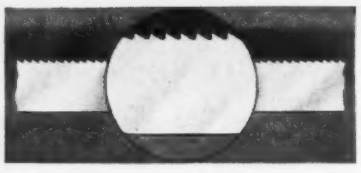
DIASTAFOR DIVISION OF

STANDARD BRANDS INCORPORATED

40 WORTH STREET NEW YORK 13, N. Y.

DIASTAFOR *36 Years of Satisfactory Results*

To Clean and Reseat Slots *in Sinker and Divider Heads*



Thomas & Skinner Slot Cutter

No need to send sinker and divider heads back to factory when you have Thomas & Skinner Slot Cutters. This simple and valuable tool enables you to clean out and reseat slots right *in your own mill.* And you can keep a machine in operation—with only the head you are working on out of production for a few hours.

Thomas & Skinner Slot Cutters are made from high grade tool steel, tempered and ground to exact gauge of the sinker. Comes in a leather carrying case. Every fixer should carry one. It is necessary to send sample sinker when ordering slot cutter.

Other Products

Other quality products which we manufacture for full-fashioned hosiery mills include Jacks, Jack Axles, Course Markers, Narrowing Plungers, Narrowing Chain, Friction Springs, Snapper Springs, Magnetized Sinker Hooks, Cams, Running-in Machines.

Reconditioning Service

We restore worn cams, gears, rollers, and many other textile machine parts to their original size and shape. Satisfaction guaranteed.

Thomas & Skinner Steel Products Co.

1119 EAST 23rd STREET • INDIANAPOLIS 5, INDIANA

pearance of a 2 and 1 twill, which is the reason that the back has a more prominent twill line. This is caused by the fact that two ends lie flat, and the next two are rolled so that they give the appearance of a single end.

In order to correct this condition a number of methods may be tried. The simplest remedy would be to weave this fabric as a 2-and-1 twill instead of as a 2-and-2, if the buyer would consent. Another method would be to lay it out with less warp ends and more picks to the inch. Reeding with an uneven number of ends, such as five per cent, might split the warp ends so as to make them lie flat. It is also important that the whip roll on the loom be adjusted so that the top and bottom sheds are of the same tension. A loose top shed may cause the face of the fabric to show more of the warp ends, whereas a loose bottom shed will cause the same condition on the back of the fabric.

Determining Circular "Gage"

Technical Editor:

We would like to have a simple formula for determining the gage of a circular hosiery machine. As you know full-fashioned gage is determined by the number of needles to 1½ in. This cannot be applied to circular knitting, yet we wish a formula which would give us the same final answer and also a basis of comparing circular to full-fashioned gage. (9015)

No such formula exists for determining the gage of a circular hosiery machine, unless it would be to multiply the diameter of the machine by 3.1416 and to divide this figure into the number of needles. Circular hosiery machines are generally specified as to diameter and total number of needles. The figure resulting from the above calculation will give you the number of needles per inch. To translate this into equivalent full-fashioned gage, you need merely add 50% to the number of needles found in an inch—as you know.

The term gage in circular knitting machines often has no relationship whatever to the number of needles per inch or per any unit of measure. At times gage will mean the distance between needles, and at other times it will mean the measurement of the needles which might be expressed in thousandths or might be expressed in a more or less arbitrary numbering system. The simple mathematical procedure mentioned in the first paragraph however will answer your problem as to a basis of comparison.

{ QUESTION: What important results can you expect with new fluorescent lighting? }

Managers say: "Better!" Inspectors say: "Faster!" Foremen say: "Easier!"

INSPECTION work like this moves faster and better with high level, daylight quality illumination from new G-E Fluorescent lamps.

FOREMEN find adequate lighting helps produce more cloth easier—with fewer breaks, rejects, and seconds.

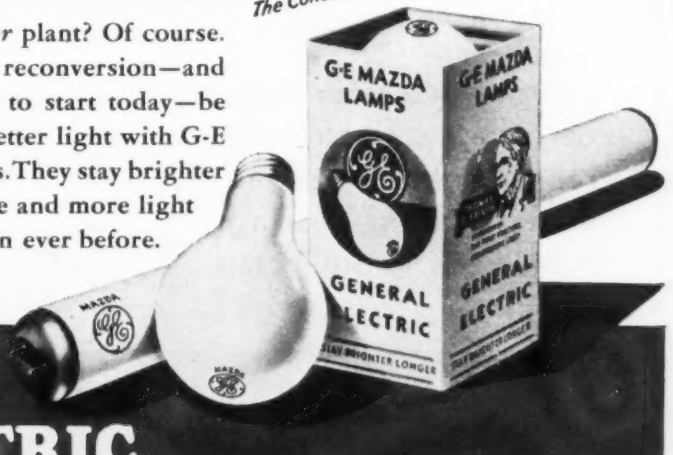
MANAGERS testify to better plant efficiency through the use of G-E Mazda F lighting for better, faster seeing.

. . . . . You gain <u>all</u> these advantages with indoor daylight from G-E Fluorescent lamps

• Hundreds of textile mills, using indoor daylight from G-E Fluorescent Lamps, are now making important gains in plant efficiency, in lower costs, in more precise work done by more people, with fewer errors and less fatigue.

Important in *your* plant? Of course. So in planning reconversion—and it's *not* too early to start today—be sure to include better light with G-E Fluorescent lamps. They stay brighter longer, give more and more light at lower cost than ever before.

"TO MAKE G-E LAMPS STAY BRIGHTER LONGER"
The Constant Aim of G-E LAMP RESEARCH



KEEP BUYING WAR BONDS—KEEP THE WAR BONDS YOU BUY

G-E MAZDA LAMPS
GENERAL ELECTRIC

Hear the General Electric radio programs: "The G-E All-Girl Orchestra", Sunday 10 p.m. EWT, NBC; "The World Today" news, every weekday 6:45 p.m. EWT, CBS

Fits Army
Fabrics for Global War..

Fabrics that must meet the rigors of today's world-wide war, need every good characteristic that you can impart.

DRUMMOND SOAP

Gives fabrics a good start on their career for Army, Navy or civilian use. For DRUMMOND Soap contains no filler of any kind . . . It's a high-body product of low alkali content . . . It has a high binding quality that results in minimum flocking . . . Saves on steam and water because it rinses easily and completely . . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand, brighter colors and whiter whites . . . Want to try it? Just write us today for a free working sample and test DRUMMOND Soap on your own goods.

Don't Sell America Short—BUY MORE BONDS

Standard Soap Co. of Camden

701 South 2nd St.
CAMDEN, N. J.

G. TANGUAY
281 Harris Ave., Woonsocket, R. I.

UNIFORMITY

You never get a "spotty" lot of Ring Travelers when you get "U. S." You always get the same uniform grade as the preceding batch. That is just one of the MANY reasons why mill men order and re-order them. How we accomplish this is a long story . . . suffice it to say that it will pay you to try U. S. if you have traveler troubles. You have? Let's cure them for you!

THE NE-BOW

Prevents yarn ends flying out, provides ample headroom for threading—prevents binding on ring. Note "bend inward" at top of horn.

• SOLD UNDER THESE TRADE NAMES

Bowen Round Point Travelers
Bowen Square Point Travelers
Bowen Improved Vertical Bronze
Bowen Patented Bevel Edge
Bowen Flat Oval and Round Wire Traveler
Bowen Patented Ne-Bow Vertical
Bowen Patented Vertical Offset

U.S. RING TRAVELER CO
AMOS M. BOWEN
President and Treasurer
PROVIDENCE RHODE ISLAND

BOOSTING EMPLOYEES' Morale

War Plants Offered New Film Booklet

A new booklet issued jointly by the Army and Navy entitled "War Films For War Workers" is devoted to illustrating methods being used successfully today in showing special battle-front films in thousands of war plants throughout the country. Photographs of actual showings given in stock rooms, cafeterias, meeting rooms, and other facilities of war plants illustrate how these locations can be adapted for showings. Also included are suggestions for utilizing local theaters, parks, union halls, etc., for similar screenings. The booklet discusses appropriate times for such showings, and also contains suggestions on how to publicize them. There is also included information on how Army and Navy films may be obtained for industrial showings. Copies of the booklet may be obtained from the Chief of the Industrial Incentive Division, Navy Dept., 2118 Massachusetts Avenue, Washington 25, D. C.

N. C. Safety Winners

Winners in the ninth annual Statewide Textile Safety Contest sponsored by the North Carolina Cotton Manufacturers Association and the North Carolina Industrial Commission, follow:

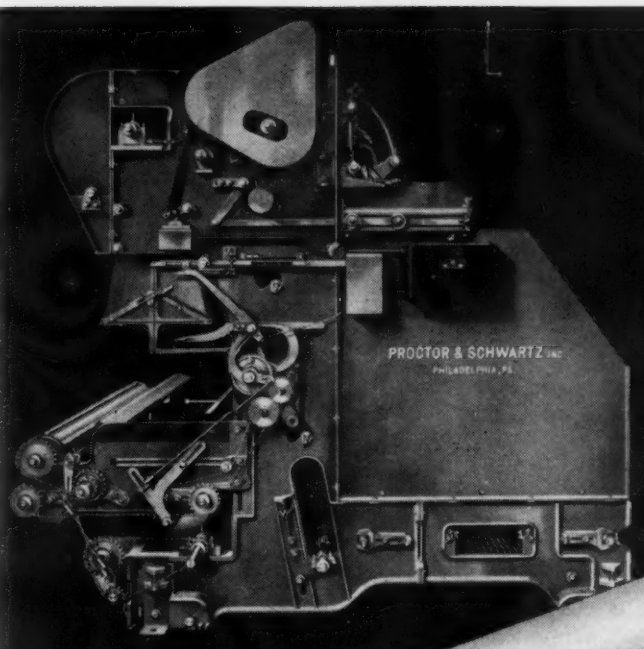
Group 1 (125 or less employees), Superior Yarn Mills, East Monbo, 171,094 hrs. without a lost-time accident.

Group 2 (126 to 200 employees), Robinson Yarn Mills, Dallas, 256,768 hrs.

Group 3 (201 to 300 employees), Greensboro Weaving Co., Greensboro, which has completed five consecutive contests without a disabling accident and is eligible for the "Governor's Special Textile Award," 422,209 hrs.

Group 4 (301 to 500 employees), Ossipee Weaving Co., Burlington, 927,576 hrs.

Group 5 (501 to 850 employees),



PROCTOR

Automatic Feed

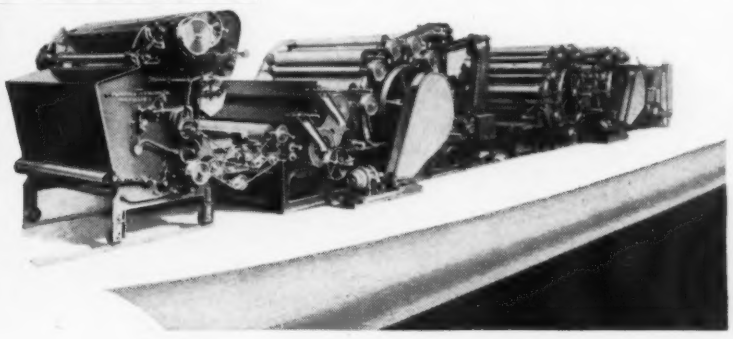
FOR WOOLEN AND WORSTED CARDS

Achieves New High in Accuracy

This New Proctor Automatic Feed has been developed for use in feeding stock to woolen and worsted cards, as well as garnetts. The feed is equipped with a motor drive with an electrical control which causes the spike apron to stop the instant the scale pan receives its weighing. This drive eliminates all mechanical clutch mechanisms, which have in the past required frequent replacement and the constant attention of the feeders. A trap door over the scale pan operates in conjunction with the electrical control, so that when the motor cuts off, the trap door is snapped shut. This holds back surplus stock so that it does not get into the scale pan to cause variations in the weighing. A new compensating device in the hopper results in the spike apron being fed an even amount of material, regardless of how much stock is in the hopper. The box may hold as much as 100 lbs. of stock, but if there are only a few pounds left to run, most of this stock will automatically work into the compensator rack, and scale pan weighings will continue to be uniform right down to the last two or three pounds, without requiring attention from the attendant. For meeting the requirement for absolute accuracy and automatic operation, this latest Proctor Feeder leads the field.

WOOLEN CARDING MACHINERY

Proctor Woolen Card Units are available in a great variety of arrangements to meet individual plant requirements. Investigate the advantages of this Proctor equipment.



PROCTOR TEXTILE MACHINERY

manufactured by

PROCTOR & SCHWARTZ, INC.
PHILADELPHIA 20, PA.

EVERY USER of fluorescent can improve the quality of his lighting service by installing G-E Watch Dog Starters. Lighting engineers and maintenance men are replacing worn-out starters with Watch Dogs because these manual reset starters substantially reduce maintenance time. That's only one important reason why you should switch to G-E Watch Dog Starters. There are many others.

The Watch Dog . . .

stops annoying blink and flicker of dying fluorescent lamps. Blinking cannot possibly recur.

eliminates needless and futile starting attempts under dead lamp conditions.

safeguards ballasts from operating at short circuit when lamps reach end of their useful life.

outlasts an average of ten 40-watt lamps under specified test conditions. Watch Dog has a rated life of 25,000 hours.

Write for our free bulletin, "How to Use Fluorescent Accessories for Best Lighting Results." Send your request to Section G1243-109, Appliance and Merchandise Dept., General Electric Co., Bridgeport, Conn.

BUY WAR BONDS AND KEEP THEM

Hear the General Electric radio programs: "The G-E All Girl Orchestra" Sunday 10 P.M. EWT, NBC. "The World Today" news every weekday 6:45 P.M. EWT, CBS.

GENERAL ELECTRIC

BOOSTING MORALE

Marion Mfg. Co., Marion, 927,576 hrs.

Group 6 (851 and over employees), Cascade Rayon Mills, Mooresville, 1,206,921 hrs. with only one lost-time accident.

The Moroweb Cotton Mills, Dallas, won another certificate, making five consecutive wins, making it, too, eligible for the "Governor's Award." The Indora Mills of Winston-Salem won the "Governor's Award" last year and then added another win to its column by completing the 1944 contest with no lost-time accidents.

Investigate Child-Labor Charges

Agents of the U. S. Department of Labor have been conducting an investigation of plants that may be employing child labor in the Louisville, Ky., area, with view to bringing action under the Walsh-Healy Act. An employer violating the Federal act, which relates to public contracts, is liable to a fine of $10 a day for every day a child under the age of 16 works in his establishment and he is barred from shipping goods manufactured under those circumstances in interstate commerce for 30 days, the official added. Most of the current cases arise from the children themselves, who falsify their ages in order to get the job.

Spreads Knowledge of Industrial First Aid

To minimize the loss of production time in textile mills, Ray M. Spangler, division claim manager of American Mutual Liability Insurance Co. at Atlanta, assisted by Clifford A. Anderson, district claim manager at Greenville, is arranging with local doctors and managements of textile mills to give a short industrial first-aid course to plant personnel selected by the management. The course takes two hours an evening once a week for five weeks. The course is being given in Honea Path, Anderson, and Clinton, S. C., and a preliminary meeting was held in Greenville on Nov. 28. Other textile centers will be included later.

Movies to Educate Foremen

Problems of shop foremen, personnel directors, and office supervisors are shown in a new series of 16 motion pictures, according to the Office of Education, Federal Security Agency, under which the pictures are produced and released. This film series, called

FOR FULL EFFICIENCY

To develop the full efficiency of cards, equip them with BOOTH Card Clothing. There is a complete line; Cylinder Clothing, Doffers, Workers, Strippers, Angle Strippers, Tumblers, Fancies, Rings, Lickerins, Feed Rolls, etc.

BOOTH QUALITY Card Clothing

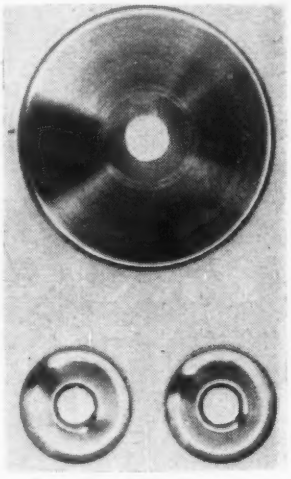
Has a firm foundation of fabric or leather, yet is flexible, which reduces the possibility of shelling out. All clothing is available with rehardened points if desired.

Benjamin Booth Co.
Allegheny Ave. & Janney St.
PHILADELPHIA 34, PA.

REEL CAPS

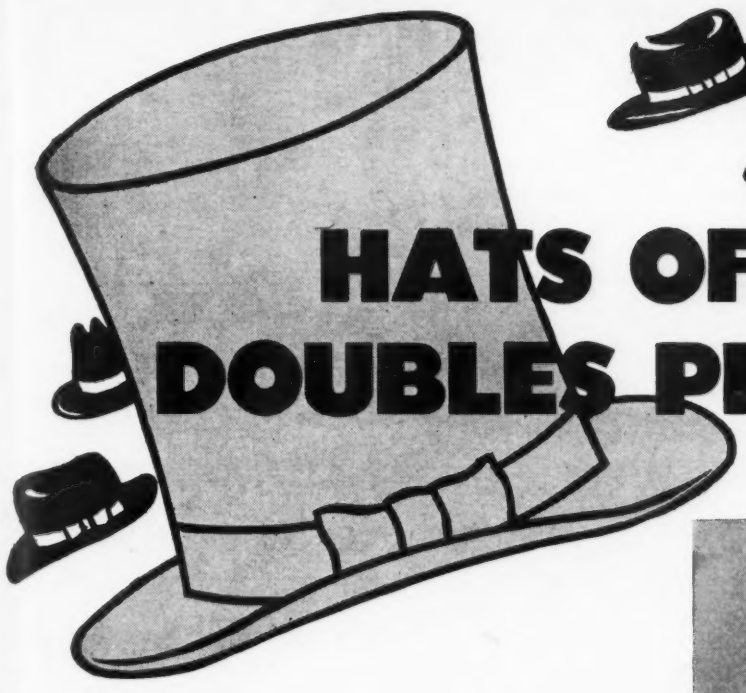
Hard Chromium - Plated Steel Reel Caps, made in sizes to fit your bobbin heads. *Write for quotation.*

WAYNE MANUFACTURING CO.
Textile Mill Supplies
HONESDALE, PENNSYLVANIA



TENSION-DISCS

Made of hardened steel, hard Chromium plated to resist wear and corrosion. Fit Universal Tension Bracket. *Write for quotation.*



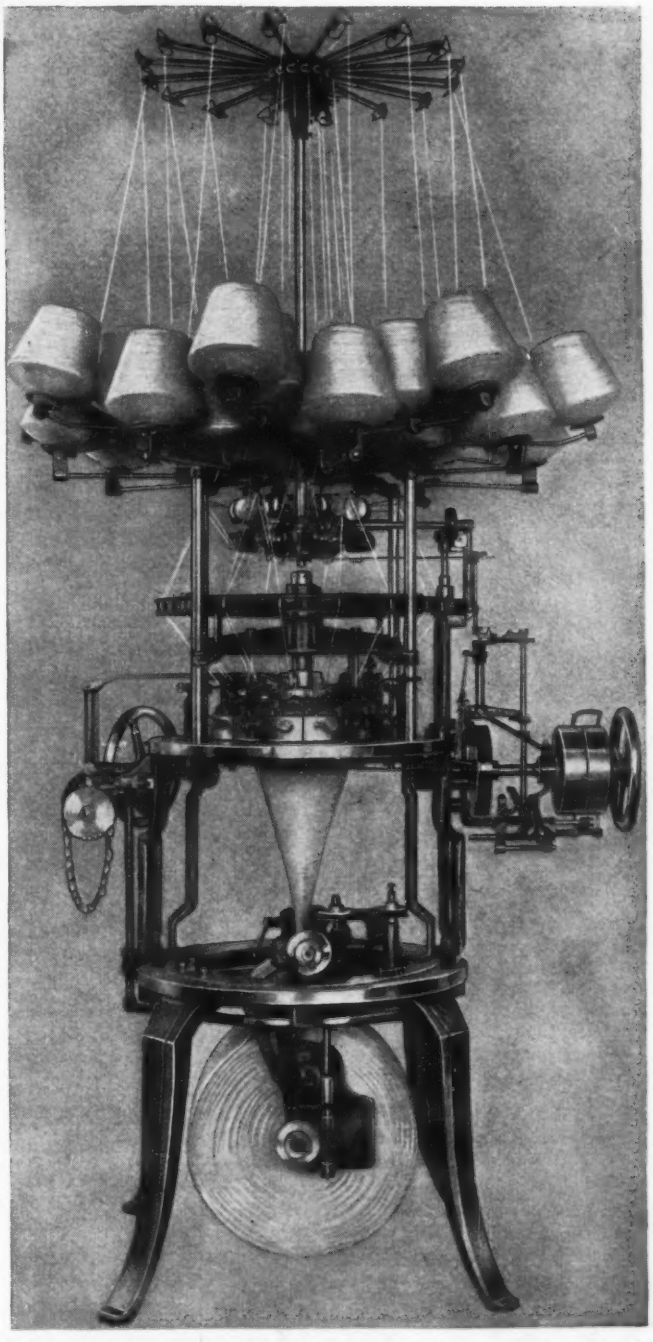
HATS OFF to a Machine that DOUBLES PRODUCTION

There was never a time when factory floor-space and man hours were at a greater premium than today. Quite naturally, anything that saves them, or even better, that increases production without using more of them, is a genuine 3-Star item. Knitting mills all over the country are graciously lifting their hats to the

WILDMAN
Multiple-Feed
RIB MACHINE

A 16-feed knitting machine, it takes not one inch more space on your floor than an 8-feed machine; yet with it you can actually DOUBLE PRODUCTION, using only about 30% more power. In addition, this remarkable machine delivers a finer, cleaner, more uniform product. Let us tell you about its splendid, trouble-free operation, and other advantageous and exclusive features.

WILDMAN MFG. CO.
Norristown, Pa.



For AMERICA "Throw YOUR SCRAP into the Fight"

QUALITY RICHMOND PRODUCTS

Less
Handling with

AFTER CHLOR

eliminates
3 to 5 handlings

Bleach with
HYPOCHLORITE
Rinse and Use
AFTER-CHLOR
That's all!

•

Write for FREE Sample—
enough for a Trial Run

Our Technical Department
is at your Service

RICHMOND OIL, SOAP
& CHEMICAL CO., Inc.
153-155 RICHMOND STREET
PHILADELPHIA 25, PA.

It's as simple as that . . . just jot down in your postwar planning file to specify U. S. products. And, when peace comes, we'll be able to supply you with *greatly* improved machines, made better by research and development. Uncle Sam now uses our production efforts; but after the war, plan on using:

- U. S. ACME TWISTERS for spool or headless package
- U. S. JUMBO FACE DRIVE TWISTERS for large headless package work
- U. S. ACME DOUBLER TWISTERS, large package
- U. S. REDRAWS and SPOOLERS

U. S. TEXTILE MACHINE CO.
SCRANTON, PENNSYLVANIA, U. S. A.

BOOSTING MORALE

"Problems in Supervision," is designed to help train thousands of new foremen and supervisors in war industries.

Each motion picture in the series takes up one aspect of supervision, raises questions commonly faced by supervisors, and suggests practical ways of meeting the problem. The films do not give "final answers," but, instead, provoke thought and discussion.

GM Personnel Manager Speaks to Pacific Foremen

Pacific Mills Foremen's Club, Columbia Division, Columbia, S. C., held its regular monthly meeting on Nov. 3, with L. W. Lohrey, personnel manager, General Motors, Delco Division, Dayton, Ohio, as the principal speaker. L. A. White is president of the club. The Pacific Club has been affiliated with the National Association of Foremen for three years and has a membership of about 100 foremen in the Columbia Division.

Bigelow-Sanford Foremen Meet

The regular November meeting of the Bigelow-Sanford Foremen's Forum on Nov. 14 was addressed by James M. Donnelly, general superintendent of the Amsterdam plant of Bigelow-Sanford Carpet Co., on the subject of plant practices and programs. John Farrell showed colored movies of contestants in action at the recent fall golf tournament sponsored by the Forum. Refreshments, cards, and music completed the evening.

$93,500 Awarded Science Talent Search Winners

Scholarships worth almost $82,500 have been awarded the 300 winners of the second annual Science Talent Search, completed in 1943, to help them through their first year of college, Watson Davis, director of the Science Clubs of America, sponsors of the competition, has announced. This amount is the total granted by colleges and universities, exclusive of the $11,000 in Westinghouse Science Scholarships, awarded only to the 40 finalists in the Science Talent Search. The 260 who received honorable mention were successful in obtaining scholarships through other channels.

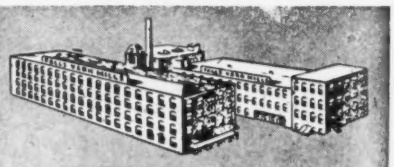
The fourth annual search is already under way. The examination is designed to test the ability of the student to think and observe, rather than his actual scientific knowledge and will be given from Dec 1 to 27.

HAY
TEXTILE LEATHERS

Distinctive
Rub Aprons
for French Drawing

Comb and Gill Box Aprons
for
Bradford
and French Systems

JAMES E. HAY LEATHER CO.
13 LANE STREET LOWELL, MASS.
Established 1870

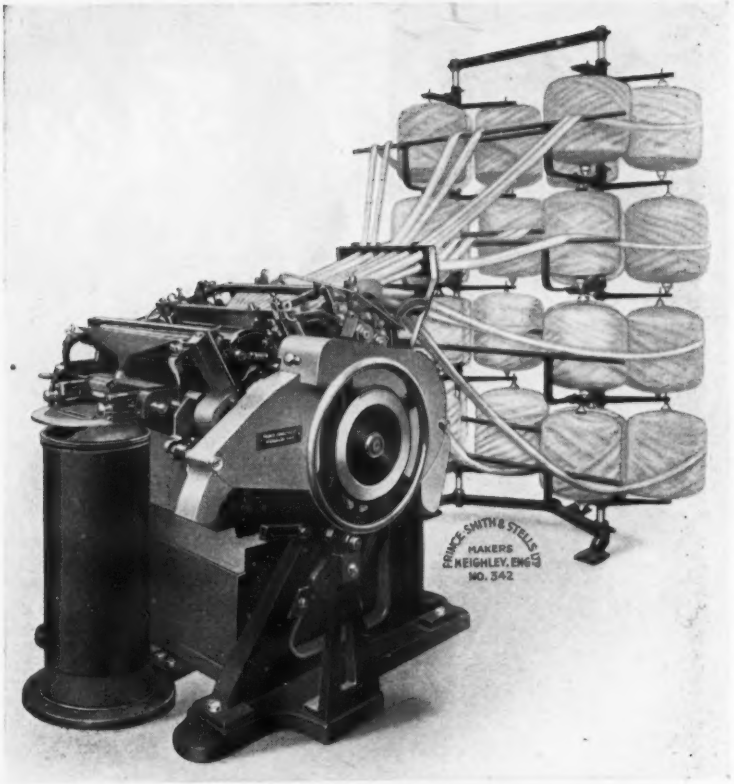


ESTABLISHED 1904
Falls
MEANS THE BEST IN
YARNS

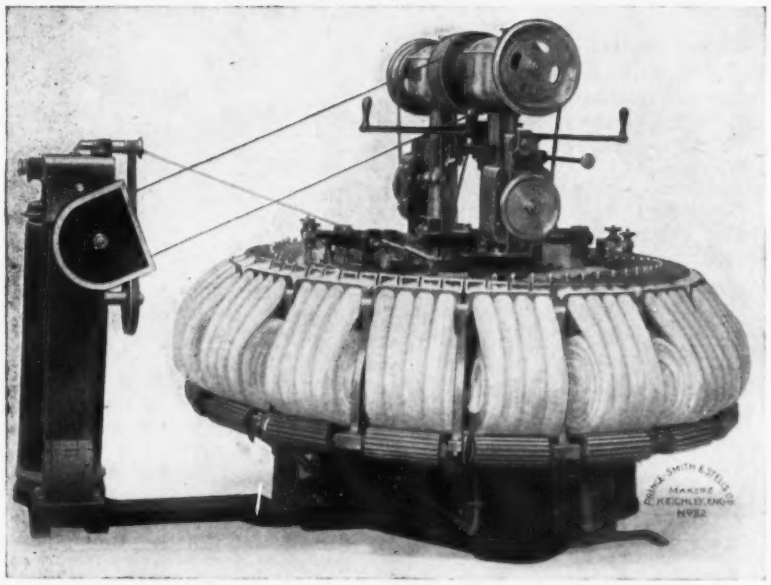
MANUFACTURERS OF FINE
WOOLEN & SPECIALTY YARNS
Falls Yarn Mills
WOONSOCKET RHODE ISLAND

SELL DIRECT
STANLEY PORTER
NEW YORK
257 4th Ave.

WE ARE MAKERS OF THE CONTINENTAL AND ENGLISH SYSTEMS OF COMBING, DRAWING, SPINNING & TWISTING



WORSTED



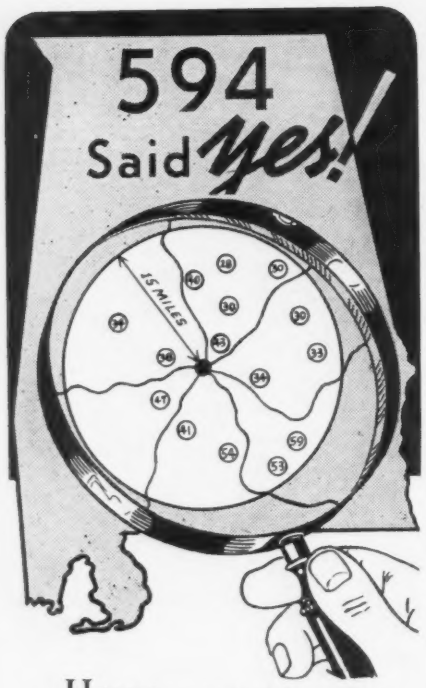
THIS UNIQUE POSITION MEANS WE CAN OFFER YOU OUR SERVICES NO MATTER WHICH SYSTEM YOU ARE INTERESTED IN.

PRINCE-SMITH & STELLS LTD.

WORSTED MACHINERY MANUFACTURERS

KEIGHLEY (Yorkshire) **ENGLAND**

Agents: Atkinson, Haserick & Co., 211 Congress Street, Boston, Mass.



HERE'S a sample of the studies being made for prospective industries in Alabama.

Shown in this circle is a map of a typical community in Alabama and its surrounding area—one of many particularly suited to **knitting** and **sewing** industries. Within its 15 mile surrounding environs, interviews were held with women residents by precincts to find how many would take jobs in a prospective knitting mill. **594 eagerly said "Yes!"**

Many of these women had never worked in industry. But they were from the same class of workers who have made such outstanding production records in many other large Alabama textile establishments. Intelligent, quick to learn, anxious for employment, they will make good, too.

Many rural counties in Alabama have practically no industries. In each of these counties within a radius of 20 miles of the largest town, from 500 to 3,000 women are now available for textile employment.

Some mill soon will be entering these areas—employing these willing workers. If you would be first in the field in the most favorable location, come to Alabama now and look over these low-cost mill sites. Or write us to make a confidential, preliminary study for you.

Write Dept. T, Alabama State Chamber of Commerce, Montgomery 1, Ala.

ALABAMA
STATE PLANNING BOARD
Montgomery 5, Alabama

Free FOR THE ASKING

MANUFACTURERS' BULLETINS

READERS interested in literature reviewed on this page may secure copies with time-saving coupon on page 184. Mark what you want on it and send it to Textile World, 330 West 42nd St., New York 18, N. Y., being sure to give your name and company connections.

1. Wool shrinkage control with Lanset is the subject of technical bulletin No. 766, announced by the Calco Chemical Division of American Cyanamid Co. The bulletin describes properties of a melamine resin and its application in the control of wool shrinkage.

2. "Getting the Most from Winding". is the title of No. 47 of a series of folders being offered by Universal Winding Co. This folder deals with straight-belt drive, adjustment of traverse-frame stops, and a sensitive sizing gage. All of these items are in connection with the No. 50 winding machine.

3. Painting for safety, efficiency, and output is discussed in a folder being offered by L. Sonneborn Sons, Inc. A method of painting utilizing "productive" coloration for safety and increased output in a mill is described.

4. General Limitation Order L-215, as amended Sept. 22, 1944, and dealing with priorities of textile machinery is discussed in the October issue of *Davis & Furber News*, published by Davis & Furber Machine Co.

5. "Preserving Yarn Quality in the Carding Process," is the title of an article appearing in the October issue of *The Traveler*, published by Victor Ring Traveler Co. This article deals with many of the maintenance operations necessary in card rooms.

6. "Infra-Red Ray," is the title of a booklet being offered by Red-Ray Mfg. Co. The use of infra-red rays in the textile industry for such operations as singeing, tentering, drying, slashing, curing, etc., is covered in this booklet.

7. A belt handbook is being offered by The B. F. Goodrich Co. This 74-page handbook on V-belts describes many industrial operations, as well as the operating advantages of V-belts, qualities to seek in the product, installation and care, sheaves, selection of V-drive, and general information covering the whole field.

8. Glycerine is discussed in a 32-page booklet offered by Glycerine Producers Association. This booklet, entitled "Nothing Takes the Place of Glycerine—1583 Ways to Use It," covers numerous uses for this product including those in the textile industry. Various properties and equipment are also discussed.

9. "What Shall Be the National Labor Policy?" is the title of an editorial booklet No. 100, being offered by Wonalancet Co.

10. Ethyl cellulose is covered in two technical booklets issued by Hercules Powder Co. The first booklet, "Ethyl Cellulose, Properties and Uses," contains 48 pages devoted to technical information concerning this product. The second booklet entitled, "Ethyl Cellulose Formulations with Resins and Plasticizers," has 24 pages of technical information devoted to tables, charts, graphs, and other data covering practical use of ethyl cellulose.

11. The Merchandise Mart in Chicago is described in a booklet being offered by The Merchandise Mart. Facilities offered, and a list of the industries occupying space in this building are mentioned.

12. "Protect Your Motors from Invasion," is the title of an article appearing in the September issue of *Allis-Chalmers Electrical Review* published by Allis-Chalmers Mfg. Co. This article contains much information on the adequate protection of motors so as to reduce production interruptions.

13. "What to Look for in Rayon Sizing," is the title of an article appearing in the October-November issue of *The Houghton Line*, published by E. F. Houghton & Co. This article contains numerous hints on rayon sizing.

14. "King Cotton Can Regain His Throne," is the title of an article appearing in *For Instance*, No. 2, published by American Cyanamid Co. All cotton manufacturers will be very much interested in reading this article.

15. "Inside Information About Piping," is the title of a folder being offered by Tube-Turns, Inc. The folder describes the advantages of welding fittings and flanges in piping.

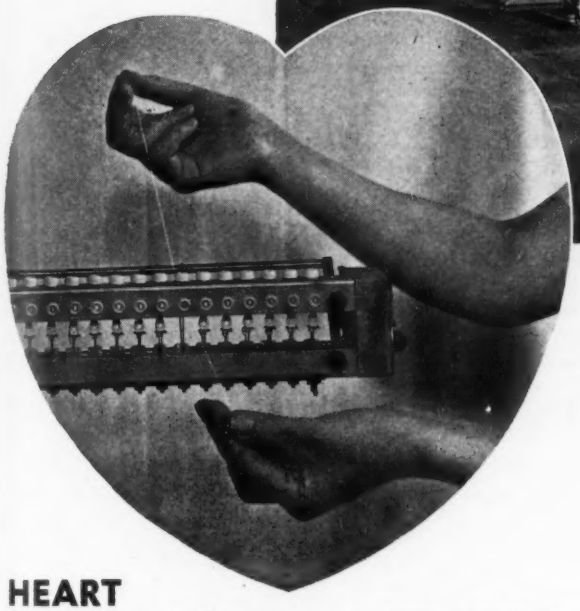
16. A military fabric woven from asbestos-covered monel wire and used to insulate Navy turbines is shown and de-

NOW AVAILABLE!

The Super-Efficient REINER WARPER AND CREEL—

Installations like that shown above, used for Nylon tire cord, have contributed greatly to war production speed.

Designed for speed this REINER WARPER and CREEL have these features for efficiency and speed.



HEART OF THE WARPING OPERATION

This Mercury Thread Stop Motion is not subject to corrosion or affected by lint—important for safe high speed warping. In a class by itself as a stop motion—dependable, efficient and more effective. This motion can be applied to any standard creel.

BEAMER FEATURES

(1) Constant thread speed.
(2) Easy Doffing.
(3) Direct Beam Drive, instead of friction drive.
(4) Slow Starting Speed, independent of warping speed.
(5) Controlled hardness or softness of the warp beam.

CREEL FEATURES

(1) Overhead Magazine Delivery.
(2) All Steel Construction.
(3) Suitable for Rayon or Cotton Cones.
(4) Movable Tension Gate for Balloon Control, for different size packages.

Both Warper and Creel can now be delivered without priorities in limited quantities.

THE REINER LINE OF TEXTILE EQUIPMENT

For forty years it has represented the highest standards of quality and performance. Included in the line are the following:

Full Fashioned Hosiery Machines
Auto Heelers
Tricot Machines
High Speed Warping Machines (Full Width and Sectional)
Magazine Creels
Jack Creels
Thread Tensions (Counterbalanced and Disc)
Kay Loom Machines
Raschel Machines
Automatic Embroidery Machines
Automatic Bobbin Winding Machines for Embroidery and Quilting Machines

ROBERT
REINER
INCORPORATED
WEEHAWKEN, NEW JERSEY

Ten minutes from N. Y. City, 41st St. between 7th and 8th Aves. by Public Service Bus, No. 67, via Lincoln Tunnel
Four Trunk Telephone Lines
Union 7-0502 — 7-0503 — 7-0504 — 7-0505

Made from Yarns Dyed by GLOBE

The frock illustrated, was made by Devonshire, Jr., Inc. from an "Elgin" fabric of acetate and cotton yarns, package dyed by Globe.

Globe is equipped to dye cotton, rayon, spun rayon, Aralac, nylon and novelty yarns.

•

For skein, package and warp dyeing—

You Can Rely on Globe

Globe DYE WORKS CO.

1865 1944

FRANKFORD
Phila. 24, Pa.

FREE FOR THE ASKING

scribed in *Nickelsworth*, No. 3, published by International Nickel Co.

17. The twenty-first annual meeting of the AATCC, held at Atlantic City, N. J., is covered in the first issue of the *Royce Reporter*, published by Royce Chemical Co. The Reporter is planning to publish several times a year articles of interest to chemists and executives in the dyestuffs and textile industries.

18. "War Films for War Workers," is the title of a booklet offered by Industrial Incentive Division, Navy Department. This booklet, issued jointly by the Army and Navy, illustrates the methods being used successfully today in showing special battle-front films in thousands of war plants and labor unions throughout the country.

19. Air-operated controllers are discussed in bulletin A-115, published by the Bristol Co. This bulletin gives detailed information about instruments for the control of temperature, pressure, vacuum, liquid level, humidity, and flow.

20. Textile leathers are covered in a series of bulletins being offered by Graton & Knight Co. Each bulletin covers one major item in textile leathers. This series of bulletins cover pickers, check straps, and spindle straps.

21. "The Scope of Sanitation," is the title of a 68-page catalog being offered by West Disinfecting Co. This catalog contains valuable information on the prevention of occupational diseases, proper washroom and plant sanitation, and pest control.

22. "Photoelectric pH Determination," is the title of a bulletin No. 505 being offered by Photovolt Corp. It is pointed out that pH determination may be obtained by the use of a colorimeter instead of the usual electrometric pH meter.

23. Lubricating equipment of both portable and stationary types, pumps, valves and accessories are illustrated and described in a catalog being offered by Gray Co. Inc.

24. Nylon bristles for shuttles are illustrated and described in *Plastics Bulletin*, No. 24, Vol. 6, issued by the Plastics Department of E. I. du Pont de Nemours & Co.

25. Private Enterprise, and the Role of Money, and Free Enterprise—How it May Be Unshackled, are the titles of two booklets being offered by Century Electric Co. Both of these articles are by E. S. Pillsbury, president of the Century Electric Co.

26. "The Role of Chemistry in the Development of Textiles," is the title of a leaflet, which reprints four of a series of advertisements run by Burkart-Schier Chemical Co. This series deals with the development of various types of dyes, early methods of dyeing, and also outstanding pioneers in chemistry of textiles.

PASTE IT ON A POSTCARD

This mailing coupon is a convenient size to paste on a penny postcard. **Circle the numbers of the catalogs you want** which correspond to the numbers on the descriptive paragraphs. Fill out the coupon **legibly** and **completely.** Paste it on a postcard, or put it in an envelope if you prefer, and mail it to Textile World, 330 W. 42nd St., New York 18, N. Y.

MAILING COUPON

TEXTILE WORLD,
330 West 42nd St., New York 18, N. Y.

I have circled below the catalogs I want, as listed in your December "Free for the Asking."

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26

My Name..... Title.....
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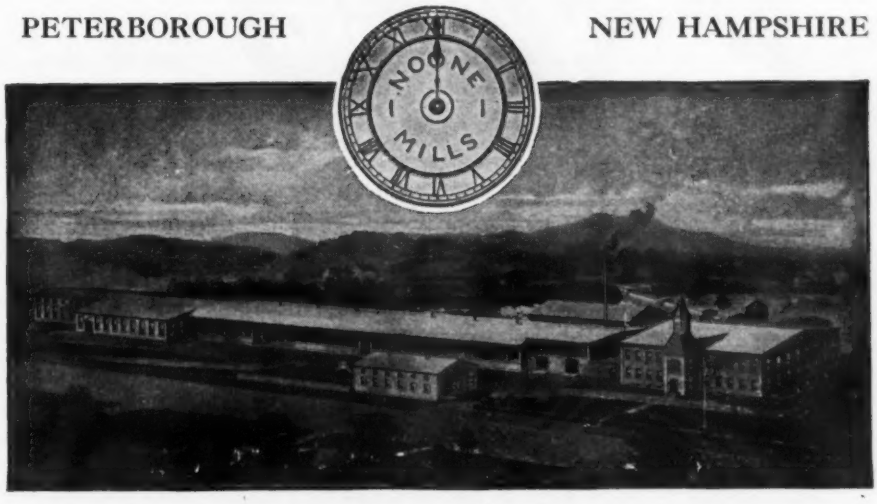
Company.....

Street..... City & State.....

The Joseph Noone's Sons Company

A. Erland Goyette, Owner

PETERBOROUGH NEW HAMPSHIRE



Established 1831

Noone's Standard Roller Cloths

Insist on Noone's Standard Roller Cloths for your Spinning Rolls. Noone's have been Standard since 1831.

Results and costs are what count most.

Use Noone's Roller Cloth and be assured of a Strong Round uniform yarn, the best obtainable. Eventual cost, less than any other covering.

Good spinning can always be obtained when Noone's Roller Cloth is used, as it is the properly built Cloth,—has the correct cushion and consistency, and uniform gauge.

Noone's is best by test.

Many materials have been used for Spinning Roll Covering in years past, but have eventually been discarded in favor of the dependable Woolen Roller Cloth and Leather.

Do not be misled, put your faith in the good Old American Products: Noone's Roller Cloth and Leather. If in doubt, allow us to demonstrate the superiority of our Roller Cloth and a leather cot.

Use Noone's Roller Cloths, Noone's Slasher Cloths, Noone's Clearer Cl[illegible]ns.

Noone's are the Pioneers in Mechanical Cloth Manufacturing in A[illegible]merica.

WILLIAM R. NOONE & COMPA[illegible]NY

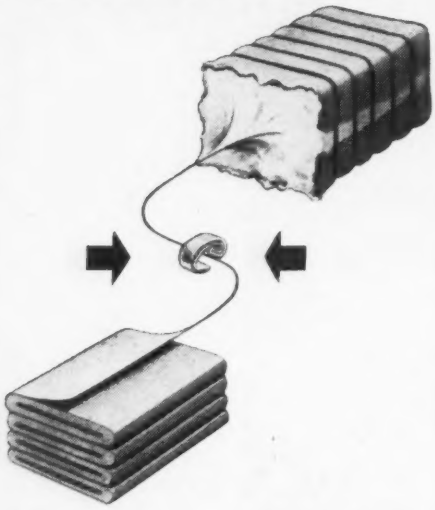
Selling Agents

ARNOLD T. MALONE, Mana[illegible]ger

105 Washington Street

Boston, Mass.

The ¼ inch* "Bottleneck"



that can block a whole mill's output

YOUR SUCCESS in processing bales of fiber into bolts of cloth as fast as expected today can be stymied by a very little thing . . . the wrong traveler.

BOTTLENECK or PRODUCTION-BOOSTER? The traveler can be either. Assuming equipment is in proper condition, if the traveler is *wrong*, the flow of work through the mill will be slowed up at the spinning or twisting. Production will lag, quality will suffer, and help will drift away. If the traveler is *right*, you can meet output schedules, cut down waste, and hold the help you need so badly.

THERE'S A MAN WHO KNOWS plenty about choosing travelers. He's ready to add his "know-how" to yours whenever you need it. He's the Victor Service Engineer. Whatever fiber you are spinning (including the newest synthetic) you'll find his information up-to-the-minute, and the Victor Traveler he recommends right. Write, wire, or phone.

*or whatever your travelers measure

VICTOR RING TRAVELER COMPANY

20 Mathewson Street Providence, R. I.
P. O. Box 1318

GASTONIA, N. C.
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Tel. 247

VICTOR
Ring Travelers

News of the month

Despite Decline in Workers, Tire Cord Output Gains. Improved labor utilization has effected an increased production of tire cord and fabric despite a slight but steady decline in employment. The War Manpower Commission has reported that during August the output of rayon cords for tires was increased by 2,800,000 lb. to 10,900,000 lb., and cotton production for the same purpose was increased by 2,000,000 lb. to 19,100,000 lb. Nylon fell off 200,000 lb. to a total of 600,000 lb. Employment in 30 tire cord and twisting plants was 33,900, off 2%. The industry will require 5500 additional workers by next March if the production goal of 31,300,000 lbs. a month, beginning in December, is to be realized. Ten of the principal rayon plants producing high-tenacity rayon yarn had 27,425 employees on Sept. 1; will need 2900 more by next March.

Maid of Cotton Contest. Plans for the seventh annual Maid of Cotton contest have been announced by the National Cotton Council, sponsors of the event along with the Memphis Cotton Carnival Association and the cotton exchanges of Memphis, New Orleans and New York. The winner will be chosen Tuesday, Feb. 6, in Memphis, and shortly thereafter will begin a 90-day tour of the major cities of America.

National Power Show. Power plant equipment for industry's immediate needs was the theme of the 16th National Exposition of Power and Mechanical Engineering, which was held in Madison Square Garden, New York, Nov. 27 to Dec. 2, coincident with the dates of a number of engineering society meetings. A great variety of highly scientific instruments were shown for measuring and recording pressures, temperatures, liquid level, and flow. New developments in metallurgy have produced alloys using available minerals and producing stronger products without changes in design. Another recent development, reflected by a large group of exhibits, is the increased use of lighter machine tools on production work, making for both speed and accuracy.

Pretermination Settlements. An all-inclusive pretermination agreement has been entered into between the Philadelphia Quartermaster Depot and the Botany Worsted Mills of Passaic, N. J., it was announced by Brigadier General Roland Walsh, Commanding General of the Depot. The pretermination settlement, which has been in negotiation for several months, covers all questions that might arise should the Quartermaster Corps terminate one of the war contracts which the Botany Mills presently hold.

Half-Million Dollar Building. At a meeting of the Textile Operating Executives of Georgia Nov. 25 at Georgia School of Technology, Atlanta, Ga., Col. Blake R. VanLeer, president of the school, announced that a new $450,000 textile building is now being designed by the architects and will constitute the school's first post-war project. Graduate work will be carried on in textile courses and every effort made to cooperate closely and efficiently with the industry. Other speakers were: T. M. Forbes, executive vice-pres., Cotton Manufacturers Association of Georgia, who discussed policies and procedures of WLB.; Thos. Quigley, of WMC, and Grady Bradshaw, personnel director, West Point Mfg. Co. S. W. Hempstead, general manager Martha Mills, Thomaston, was elected general chairman for the coming year.

Urges Wise Taxation. Tax measures "of an exceedingly wise nature" are necessary if Canadian industry is to have the finance to equip itself for post-war employment and competition, Hugh Lawson, president of the Canadian Woolen & Knit Goods Manufacturers Association, said in a speech delivered at the 22nd annual meeting of the association in Toronto, Nov. 22.

Towels Upped 9.18%. OPA granted a lift in price ceilings on towels amounting to 9.18% under the Bankhead Amendment. The formula used for the calculation has met general protest from the industry.

Perhaps Textile Show Next Fall. The Textile Hall Corp., Greenville, S. C., is making plans to be ready for a textile show in the fall of 1945 providing that the war is over early enough and that permission can be obtained from the agencies such as the ODT to allow the show to be held. W. G. Sirrine, president of the corpo-

Factoring

CAN SOLVE

POST WAR PROBLEMS

Credit checking will become more and more difficult after the war due to changing economic conditions.

Likewise the need for more working capital to increase production and sales in order to meet competition will be necessary.

With ninety years of service to Manufacturers, Merchants and Selling Agents, we offer a plan to relieve credit and financial worries.

James Talcott, Inc.

1854 FACTORS 1944

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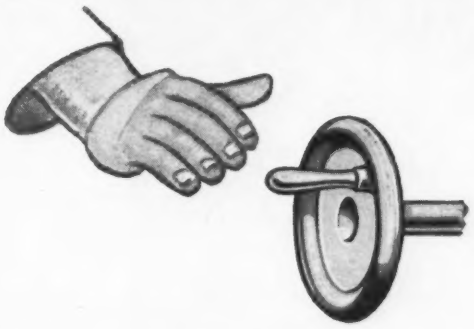


WHAT HAPPENS when a Lewellen Variable-Speed Transmission is in the drive of your production machine?

● A simple touch of a handwheel (or automatic control) and your operator has ANY SPEED AT HIS COMMAND—even to a fraction of an r.p.m. ● PRODUCTION IS INCREASED. Often what a machine can do is simply a matter of its operation at the correct speed. Speeds are changed without stopping machine—time is saved. ● UNIT COSTS ARE LOWERED. Adjust speeds to equal skill of operators—change in materials, and costly rejects are reduced to a minimum. ● FINISHED UNITS ARE IMPROVED IN QUALITY. Production flows smoothly when machines can operate at the right speed at the right time. *Our engineers are constantly working with companies to solve their speed-control problems. This is our specialty. It has been for more than 45 years. Tell us your problem. No obligation. Lewellen Manufacturing Co., Columbus, Indiana.*

LOOK TO LEWELLEN— SPEED-CONTROL PIONEER

DYED ACETATE YARNS of TREMENDOUS FASTNESS

Either Filament or Spun

Colored in the wound form (eliminates tangled skeins). Can be dyed in large batches per color — 500 to 1000 lbs.—for delivery on Atlantic Dyetubes or other putups.

These colors are DIFFERENT — have excellent fastness and are produced in the only machines of their kind in existence. (Process protected by U. S. patents).

Atlantic Rayon CORPORATION

Dyers and Converters of Synthetic Yarns for all Industries

PLANT AT PROVIDENCE 1, RHODE ISLAND

New York Office
Empire State Bldg.,
5th Ave., New York

ration, feels that textile equipment manufacturers should get together a textile exposition to benefit textile executives by bringing them up-to-date on new equipment and accessories, at the earliest practicable date.

Considers MPR-127 Protests. Protests over inequities in the reissued MPR-127 came from many converters last month. J. F. Brownlee, OPA Deputy Administrator, indicated to the Textile Fabrics Association and Textile Distributors Institute that he would give attention to consolidated recommendations which they might submit.

Thread Institute Meets. The Cotton Thread Institute held its 11th annual meeting Dec. 14. The general session was addressed by Josef Pollack, chairman of the board. A forum period was held with discussion led by P. S. Howe, Jr., president of American Thread Co.

Overseers Meet. The 61st annual meeting of the National Association of Woolen & Worsted Overseers was held in Boston, Nov. 18. The group elected 48 active and 4 associate members, and received application from 45 additional members and 3 associates. Eugene Tatro of Manchester, N. H. was elected president. William Liske was elected third vice-president, the only contested office. A conference between this association and representatives of the National Association of Wool Manufacturers was planned.

Statistics for Felt Industry. Hugo Boeddinghaus, who recently resigned from the Textile, Clothing and Leather Bureau of WPB to resume his duties as vice president of the American Felt Co., has lately conferred with Maxwell R. Conklin and Edmund R. Young of the Bureau of Census at Washington, on the matter of statistics for the felt industry. Mr. Boeddinghaus agreed that it was important that all members of the industry file the information that the Bureau of Census will require when census figures are being collected.

Postwar Growth for Lace. Increased demand for American lace after the war was predicted by Lewis Bestwick, a weaver in this field for over 35 years, at a gathering of over 200 lace mill operatives at Coventry, R. I., on Nov. 18. Mr. Bestwick was master of ceremonies at the dedication of a 75-star service flag honoring lace workers now in the armed forces. It was brought out that there were only 12 lace machines in the Pawtuxet Valley 34 years ago compared with 123 today.

Rates Cotton First for Insulation. E. H. Omohundro of the Cotton and Fiber Branch, Office of Distribution, War Food Administration, in a new 44-page book, analyzes for home owners and builders the comparative qualities of eleven types of commercial insulation. Mr. Omohundro's analysis, based on tests, rates cotton as the No. 1 commercial insulation available.

Products of Tomorrow. Chicago's Coliseum will be the scene next spring of the "Products-of-Tomorrow Exposition" and already space is being contracted for by manufacturers who have their peacetime production ready for presentation.

Institute Buys Property from Callaway. Callaway Institute, Inc., LaGrange, Ga., has purchased the building it has leased from Callaway Mills since the formation of the Institute early in 1943. The purchase, which was a cash transaction, includes also all of the equipment, machinery and other facilities in the institute building.

Rayon Production. United States production of rayon in 1944 will approximate 715,000,000 lb., setting a new production record for the industry, according to William C. Appleton, president, American Viscose Corp. This volume compares with an output of 663,000,000 lb. in 1943 and 633,000,000 lb. in 1942. The increase over last year's output is 8%.

Fabrics Featured in Television. Fabrics were featured as a major part of the program devoted to "Fashions of the Times" in a CBS television broadcast based on the recent presentation by the *New York Times*. Stressing the importance of good fabric as the requirement of good fashion, Virginia Pope, of the *Times*, called upon various designers to demonstrate the facility of fabric manipulation.

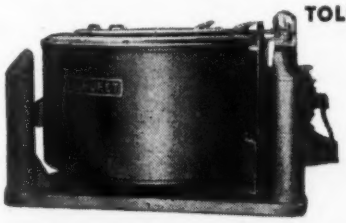
Vinyon-E for Medical Use. The Medical Dept., U. S. Army, has ordered additional elastic bandages made of Vinyon-E. One of the chief advantages of these bandages is that they maintain even elastic pressure.

H. W. BUTTERWORTH & SONS CO., Philadelphia, on Dec. 7 purchased THE TEXTILE FINISHING MACHINERY CO., Providence, R. I. The plant at Providence will be continued in operation as a Division of the Butterworth organization under the management of Edward Wharmby who, for many years, has been associated with the purchased company.

Faster and Better TEXTILE EXTRACTION *for Every Material*

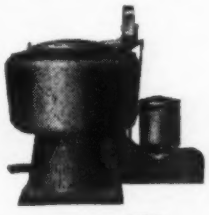
TOLHURSTS have proven themselves time and again the fastest, most efficient extractors in the textile field. For every need, for every material, the right Tolhurst will do it better and faster.

TOLHURST "SUPREX"—For cotton raw stock this 48″ extractor has proven its worth, in speed of extraction, economy and production. Smooth, efficient operation is assured by "SUPREX" suspension principle. Higher rotational speeds mean quicker and greater extraction. Timer control eliminates guessing when load is finished.



TOLHURST "CENTER-SLUNG"
Every feature of the "CENTER-SLUNG" has been designed to produce greater volume in shorter time. Unexcelled for underwear, tubing, hosiery and other fabrics. The exclusive center-of-gravity basket suspension enables this machine to handle unbalanced loads and assures smooth operation. Available in 40″, 48″ 60″, 72″ basket sizes.

TOLHURST "SOLID CURB"
Designed for rapid handling of small loads, the Tolhurst "SOLID CURB" Extractor is ideal for yarn, hosiery and other textiles. Motor drive. Basket sizes 20″ and 30″



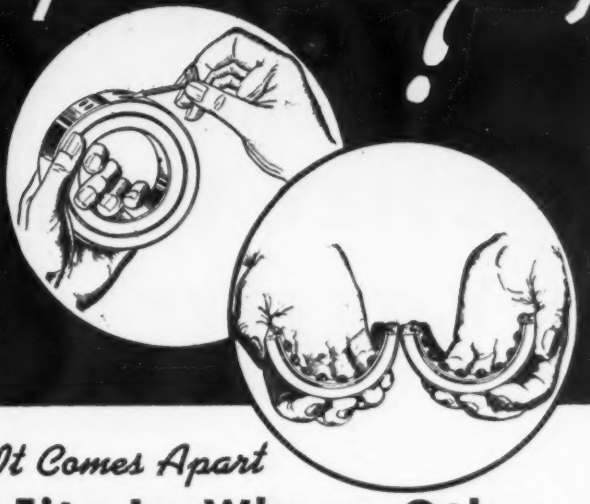
Write for detailed literature

ARMY NAVY

Tolhurst CENTRIFUGAL DIVISION

AMERICAN MACHINE AND METALS, INC.
EAST MOLINE, ILLINOIS

What is This Split Ball Bearing?



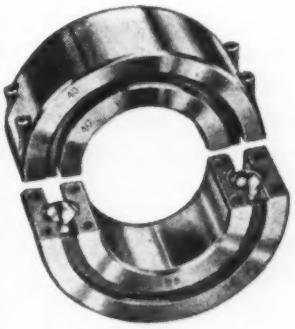
It Comes Apart

• Fits In Where Other Bearings Can't Be Used

A split bearing is nothing new. Probably the first sleeve bearings ever used were split bearings. But it took man a few centuries to discover that ball and roller bearings could also be split by a patented process.

These Split bearings, because of their divisible races, are easy to fit on crankshafts, gear clusters, compressors, shaft flanges, accessory drives, connecting rods and other places where solid-race bearings cannot be used.

Split Bearings will deliver the same performance you get from a solid race bearing *plus* the fact that it is divisible. It is manufactured to A.B.E.C. 1 tolerance, a guarantee of efficient, long-life performance — ball or roller, in radial or thrust type.



Split Ball Bearings are held together with special taper-head screws. To divide bearing, unscrew with socket-head wrench. Divisible races permit assembly where solid-race bearings can't be used.

Send today for Catalog T.W.-44

·DIVISIBLE RACE BEARINGS·
SPLIT BALLBEARING CORPORATION
LEBANON, NEW HAMPSHIRE, U. S. A.

5 reasons why you should DESIZE WITH EXSIZE*

***EXSIZE,**

the standard enzyme desizer

1. Safe, even for the sheerest fabrics. Contains no harsh alkalis or chemicals. Gentle, thorough action. Cannot weaken cloth.
2. Works evenly and rapidly. Leaves materials soft, elastic, and supple—with good "hand."
3. Easily handled and stored. Simple to prepare and use. Keeps well in cool storage.
4. Uniform results. Never does a spotty job. Turns out same clean, absorbent fabrics every day.
5. Does an effective job of desizing at very low cost.

Use our laboratories for your tests. No obligation. Or, if you prefer, a trained Pabst field man will gladly work with you in your own mill. Write for our free booklet.

Pabst Sales Company

CHICAGO, ILLINOIS

Warehouses at New York, and Textile Warehouse Company, Greenville, S. C.

Copr. 1944 Pabst Brewing Company, Milwaukee, Wisc.

NEWS ABOUT Suppliers

L. H. Gilmer Co., Philadelphia, Pa., has been acquired by U. S. Rubber Co., and will hereafter operate as the L. H. Gilmer Co., Division of the United States Rubber Co. J. S. Krauss, Gilmer president, will remain in active management.

Aralac, Inc., Taftville, Conn., has increased production of Aralac to 30,000 lb. daily over the last year.

John A. McPherson Co., Greenville, S. C., which has been organized by John A. McPherson, one of the original partners in the firm of J. E. Sirrine & Co. and its chief engineer until his resignation in 1943, will supply engineering service to the textile and the pulp and paper industries. Mr. McPherson has associated with him other engineering firms that will permit the design and execution of any type of plant for those industries. His associate connections are the Six Associates, Inc., architects and engineers, Asheville, N. C., and Peter F. Loftus, consulting engineers, Pittsburgh, Pa.

WILLIAM L. PAULHAMOUS, associated with The Atwood Machine Co., Stonington, Conn., for the last 14 years, has resumed his duties with the sales department after a temporary transfer for the purpose of reorganizing Atwood's personnel department to meet the extreme demands of war production. He is in charge of Atwood's sales in New England and New York.

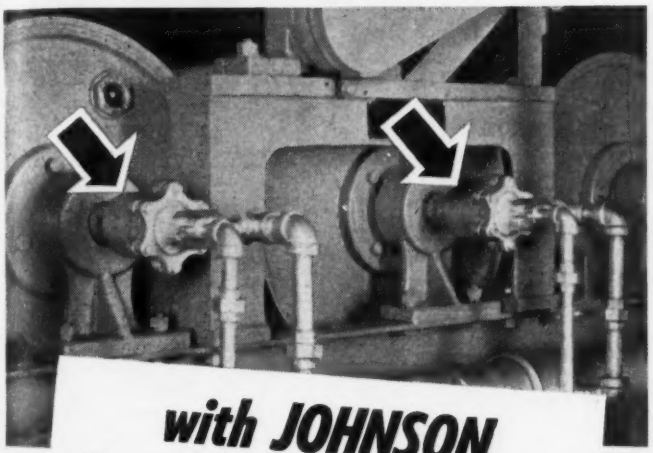
Atwood Machine Co., Stonington, Conn.—R. F. Lenihan, long-identified with Atwood's export sales, is now in South America on another trip to cover that continent's textile industries.

Union Special Machine Co., Chicago, has transferred Walter E. LeRoy, manager of its Cincinnati office since 1922, to be manager of the Atlanta office. Z. X. Bennett has been made assistant manager at Atlanta.

E. Bowers Ayres, Jr. *P. Kay Schwartz* *Walter S. Corson*

PROCTOR & SCHWARTZ, INC., Philadelphia, have named E. Bowers Ayres, Jr., and P. Kay Schwartz as vice presidents, and Walter S. Corson as treasurer. Mr. Ayers, who joined the firm in 1924, has been a director of the company since 1928. He assumes the position of vice president in charge of purchases. Mr. Schwartz, son of Walter M. Schwartz, Sr., president of the firm, began his work for the company as an apprentice in 1931, has been a director since 1939, and as a vice president his efforts are expected to be devoted mostly to the work of the Proctor Electric Co., at least for the immediate future. Mr. Corson, who was also elected a director of the company, joined the accounting department in February, 1944. F. E. Schermerhorn, who has been secretary and treasurer for a number of years, will continue as secretary.

STRETCH MAN HOURS



with JOHNSON Rotary Pressure Joints

WHEN you're looking for ways to ease today's "Help Wanted" problem, it will pay to check into your stuffing boxes or steam fits. They demand a lot of care and attention—for inspecting, servicing and, too frequently, for replacing parts worn rapidly by misalignment.

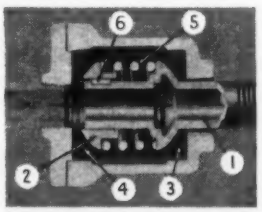
With Johnson Rotary Pressure Joints you save these precious hours of labor for more productive work, because the Johnson Joint is completely packless, self-oiling, self-adjusting and even self-aligning. You save also the production time that is wasted when machines are shut down for stuffing box repair. And with the Johnson Joint you have a simpler, easier way to provide modern, more efficient methods of syphon roll drainage.

For today's big task these production boosting benefits of the Johnson Joint are of first importance. Don't overlook, however, the savings in dollars and cents—in reduced maintenance and longer life—which can quickly pay the cost of change-over. Make that your final reason for joining the hundreds of Johnson Joint users.

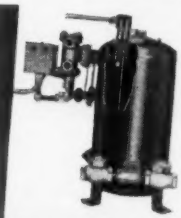
TODAY'S WAY TO SAVE TIME AND TROUBLE

• Nipple (1) fastened to roll. Sliding collar (2) keyed to nipple. Carbon graphite seal ring (3) and bearing ring (4) which eliminate oiling and packing. Spring (5) is for initial seating only; joint is actually pressure sealed when in operation.

Write for full information



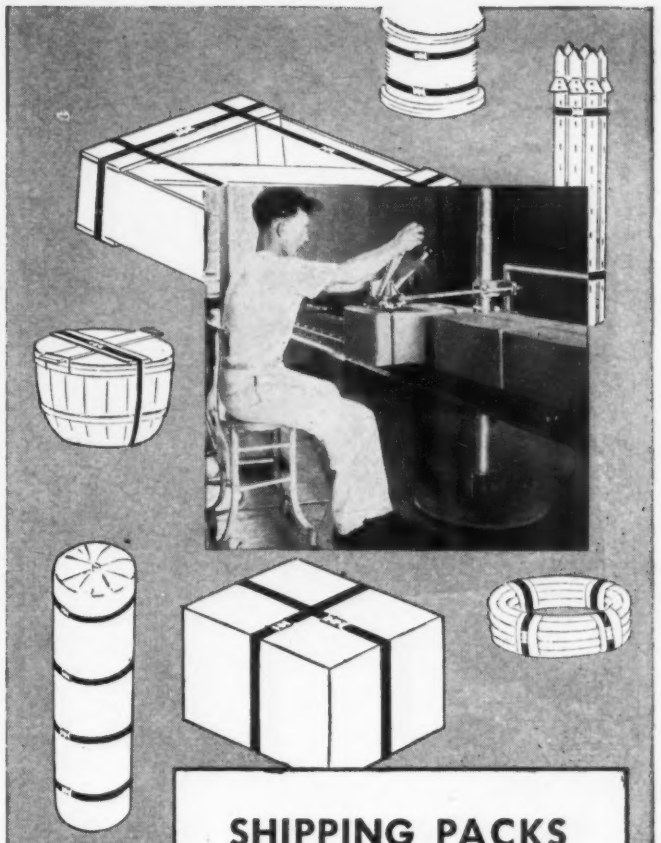
KNOW THE JOHNSON ELECTRAP



Today's highest development in a trap for pumping or lifting service, and for draining vacuum lines under vacuum as complete as 27" of mercury. Electric control makes operation as dependable as flow of electricity; there are no floats or stuffing boxes—no moving parts of any kind on trap chamber. Control valve gear is one compact assembly—can be mounted in any convenient location if trap chamber must be set in inaccessible position. Ask for bulletin.

The Johnson Corporation

814 WOOD STREET (JC) THREE RIVERS, MICH.



SHIPPING PACKS PROTECTED BY ACME Steelstrap

...are "Bound to Get There"

With the nation's shipping rooms as their laboratory... and its far-flung war fronts as merciless proving grounds . . . Acme engineers, in cooperation with the armed forces, have helped devise methods of scientific package reinforcement which will give shippers greater assurance of safe deliveries.

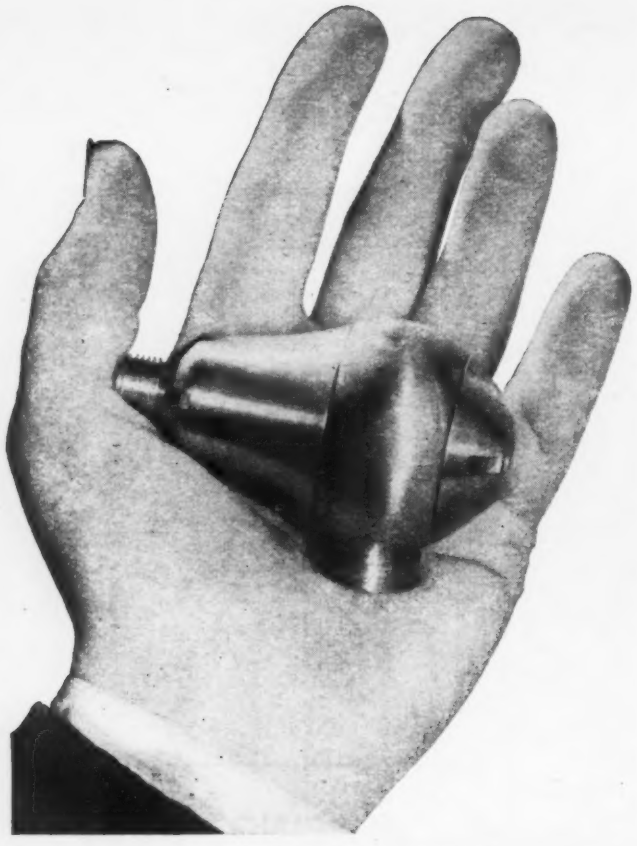
Evidence of Acme Steelstrap performance is found everywhere at home and abroad — on cases, cartons and crates; on bales, boxes and skid loads; in freight cars, ships' holds, and aboard air freight carriers.

When the war is ended, Acme engineers, and Doc Steelstrap . . . their ambassador of efficiency . . . will be ready with many new, proved ideas of better protection for your post-war business.

ACME STEEL COMPANY

2840 ARCHER AVENUE, CHICAGO 8, ILLINOIS

ACME STEEL CO. CHICAGO



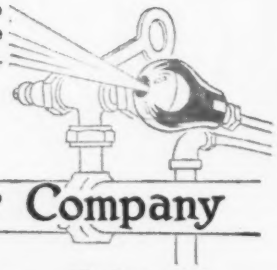
Humidifiers or Humidification

Where desperate need for moisture exists, anything labeled "humidifier" can hardly fail to help. Thus "humidifiers" sometimes get more credit than they deserve.

Mysterious looking objects delivering moisture and humidification have little in common. Humidification reckons with many things; the changing demand of the seasons, of each day, or hour, or minute. It includes peculiarities of plant, processes and product. Finally, it aims at more and better production.

Yes, "humidifiers" may help. Genuine humidification produces astounding results.

No piping changes. The Turbomatic interchangeable with earlier and other models.



Parks-Cramer Company

Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

Allen E. Brauch has been made manager at Cincinnati, and William G. Booth, formerly of St. Louis, has been appointed manager of the product application division.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has appointed R. W. Davis as general manager of its Norwood, Ohio, works. Allis-Chalmers has also appointed A. J. Schmitz, formerly manager at Seattle, as Pacific regional manager.

Interchemical Corp., New York, has added John Simonds to its sales promotion department. Mr. Simonds, formerly an account executive at McCann-Erickson agency, will assist George Welp, director of advertising and sales promotion.

Brown Instrument Co., Philadelphia, gave an electronic precision industrial instruments demonstration on Dec. 8 in St. Louis including two Walt Disney animated films on basic electronics and electricity. The films have been released by Minneapolis-Honeywell Regulator Co. of which Brown company is a division.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., has recalled Clarence M. Brown, Philadelphia attorney, to become chairman of the board to succeed the late H. S. Wherrett. Leland Hazard, general counsel, was elected vice president; H. B. Higgins, president, was named chairman of the executive committee; H. B. Brown, secretary, was elected to the board. The company has recently adopted a new official insignia consisting of the letters PPG interlocked, in order to facilitate the ready recognition of its many paint, glass, brush, chemical and plastic products. The company during November announced plans for a $700,000 addition to production facilities at its Mt. Vernon, Ohio, window-glass plant.

JEFFREY B. HENRIQUES, who has been appointed by Arnold, Hoffman & Co., Inc., Providence, R. I., as vice president in charge of purchasing and sales for Arnold-Hoffman Co.'s new industrial chemical sales division, which will soon open offices in the Empire State Building, New York. Mr. Henriques has been general purchasing agent for the United Merchants & Manufacturers Management Corp.

Multiple V-Belt Drive Association, Chicago, has elected Walter A. Meyer, Allis-Chalmers manager of dealer sales, as president for the coming year. William D. Hammerstadt, Indianapolis, Ind., is vice-president, and A. B. Anderson, Chicago, Ill., secretary-treasurer.

Westvaco Chlorine Products Co., New York, has appointed Fritz Von Bergen to its technical service division. David C. Kirk and Frank D. Nichols have been appointed to Westvaco's sales division. The company has

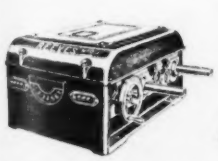
KAUMAGRAPH CO., Wilmington, Del., was recently honored by participating in the weekly radio program, "Salute to Uncle Sam's Industries" sponsored by the Navy in conjunction with Station WCAU, Philadelphia. Shown above are those who took part in this program. Left to right: Eugene Woznicki, photographer, Kaumagraph's lithographic department; Frank Shaefer, foreman of KTD Press Operations; Mrs. Jean Lugannani, stock clerk; John Egan, announcer for WCAU; Trowbridge Marston, president, Kaumagraph Co.; Stanley J. Raczpowski, Marine veteran of South Pacific war theater.

MOTOR *plus*
VARIABLE SPEED *plus*
GEAR REDUCER

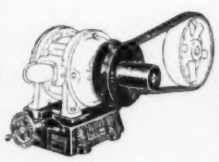
ALL IN 1 COMPACT UNIT

★ This is the REEVES Motodrive. It is a complete, streamlined variable speed power plant consisting of constant speed motor—any standard make—variable speed mechanism, and gear reducer. Installed on any production machine, it provides highly efficient driving power at variable speeds—not just a few step-speeds, but any speed between predetermined limits. . . . The Motodrive is one unit in a complete line built by REEVES. So important are these variable speed units to manufacturing and finishing processes that they are standardly furnished on most leading makes of textile machines. Easily installed on machines in service. Send for copy of new Catalog W-435.

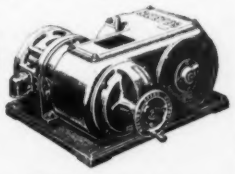
REEVES PULLEY COMPANY • COLUMBUS, INDIANA
Recognized Leader in the Specialized Field of Speed Control Engineering



VARIABLE SPEED TRANSMISSION for providing infinite, accurate speed flexibility over wide range, 2:1 to 16:1 incl.



VARI-SPEED MOTOR PULLEY converts any standard constant speed motor to a variable speed drive.



MOTODRIVE combines motor, speed varying mechanism and reduction gears in single unit. Speed ratios 2:1 to 6:1.

REEVES Speed Control

THE WETTER YOUR PLANT EQUIPMENT AND WALLS THE MORE YOU NEED

DAMP-TEX ENAMEL

Proved Fungus Resistant by FUNGUS TEST

PRESERVES AND BEAUTIFIES DINGY WET WALLS AND EQUIPMENT

Dark, dingy walls cut down efficiency Rusty, neglected equipment increases depreciation costs. Rot, bacteria and fungus play havoc generally. The Damp-Tex system was created for the plant where the presence of moisture, heat and other unusual conditions hinders proper surface maintenance. Over 4,000 plants have discovered its superiorities. Write for our trial offer.

★

Proved Lactic Acid Resistant by ACID TEST

STEELCOTE MFG. CO. • ST. LOUIS, MO.
Canadian Manufacturer—Standard Paint & Varnish Co., Windsor, Canada.

...traditional color with a *postwar fashion significance!*

Smart, serviceable Navy Blue is today's fashionable color for Sailors, Waves and Spars. This traditional color will gain added importance in postwar fashions, its popular smartness will be heightened by the beauty and color fastness of *true blue* Navy Blue.

Helpful in the preparation of *true blue* Azo dyes for Navy Blue is SOLVAY SODIUM NITRITE. This pure, free-flowing crystal of U.S.P. quality is especially suited for manufacturing dyes and for textile dyeing.

For *true blue* dyes and dyeing—specify SOLVAY SODIUM NITRITE and be sure of results!

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

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BRANCH SALES OFFICES:

Boston • Charlotte • Chicago • Cincinnati
Cleveland • Detroit • New Orleans • New York
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SODIUM NITRITE

also named Warren R. Philbrook, formerly manager of its Carteret, N. J., plant, to be industrial relations director for all Westvaco plants. Fred S. Rooney, previously assistant to the vice president of operations, has been made acting manager at Carteret.

Stein, Hall & Co., Inc., New York, has elected Don M. Hawley as vice president in charge of sales for all Stein-Hall companies in the country. He is a director of the New York company and general manager of Stein, Hall Mfg. Co., Chicago. Robert M. Stein, secretary of the New York company, has been elected vice-president. L. F. Turnbull, H. R. Barnett, J. A. Lowander and H. M. Johnston, product managers, have been elected assistant vice-presidents.

Engineering Contractors, Inc., Atlanta, Ga.—I. B. Kagey and Charles B. Smoot, formerly branch manager and chief engineer, respectively, of Atlanta branch, Carrier Corp., have recently joined Engineering Contractors, Inc., as partners. This firm handles air conditioning, process refrigeration, cold storage and ice plants.

Tesco Chemical Co., Atlanta, Ga., is building a new and modern plant on Northside Drive, adjacent to S. A. L. Railway. It expects to double present output. Tesco manufactures textile specialties. Officers are: T. E. Schneider, pres.; J. F. Walsh, sales manager; Lee L. Baker, research manager.

Comprehensive Fabrics, Inc., New York, has named John H. Miller as manager of advertising and sales promotion. Comprehensive Fabrics, Inc. are distributors of Koroseal, the B. F. Goodrich polyvinyl-resin synthetic.

American Railway Express, Air Express Division, New York, recently marked the 25th anniversary of the first full-scale air express flight which left Mitchel Field, Long Island, on Nov. 14, 1919 with cargo for Chicago.

Carrier Corp., Syracuse, N. Y., has made its Atlanta branch office the Atlanta district office with C. V. Fenn, in charge as district manager. The territory covers six southwestern states.

JAMES W. COREY, who has been elected president of Reliance Electric & Engineering Co., Cleveland, Ohio, succeeding Clarence L. Collens, for 37 years president, who was elected to the newly-created post of chairman of the board. Mr. Corey has been sales vice president since 1940.

Chemical Processing Co., Charlotte, N. C., has added W. C. Gibson to its staff. Mr. Gibson was formerly with Stodghill Chemical Co., Atlanta, Ga.

Grinnell Corp., Providence, R. I.—Llewellyn W. Jones has retired as treasurer after having served the organization for 53 years. C. H. Rison, assistant treasurer, succeeds him.

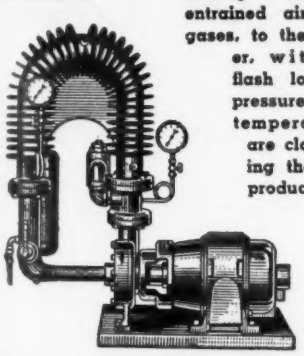
United States Rubber Co., New York, has developed an extruded thread of synthetic rubber which retains elasticity through repeated washings and flexings. This is now being made in the cream color required for corset fabrics as well as black for other uses. This material makes possible the resumption of manufacture of "Lastex."

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has elected David M. Salsbury as vice president and general manager of the Westinghouse Electric Supply Co.

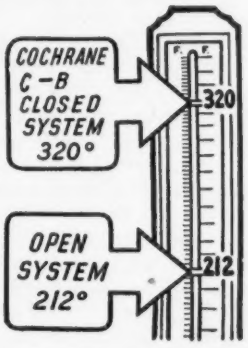
E. I. du Pont de Nemours & Co., Wilmington, Del., have appointed F. H. Weismuller as director of sales of the Pigments Department, of which he was formerly production manager. He succeeds John F. Daley, recently made general manager of the department. F. H. Ernst, manager of the Du Pont rayon plant at Old Hickory, Tenn., has been made assistant production director of the Rayon Division, reporting to Arlington Kunsman, director of rayon production. Mr.

SPEED UP REMOVAL OF CONDENSATE AND AIR ... WITH NO FLASH LOSS

SAVINGS IN TIME— IN FUEL AND INCREASED PRODUCTION ARE AMAZING



The Cochrane-C-B High-Pressure System of Condensate Return is a remarkable new system of draining condensate from process equipment and returning it free of entrained air and gases, to the boiler, without flash loss — pressure and temperature are close to that of the steam when leaving the boiler. Savings and increase in production are amazing. Ask for details or write for publication 3025.



Cochrane Corporation

3116 N. 17th St.

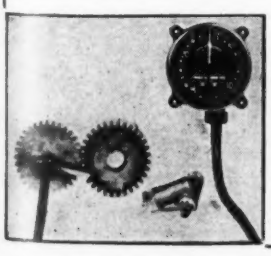
Philadelphia, Pa.

COCHRANE C-B SYSTEM OF HIGH PRESSURE CONDENSATE RETURN

INDISPENSABLE FOR CONTROLLING AND INCREASING PRODUCTION

Every textile plant can benefit through the use of Jones Tachometers. Used for checking RPM; provides instantaneous and continuous check on operating speeds of rollers, shafts and other rotating parts; indicates shaft RPM, feet per minute, total output and other essential production information. Allows machines to run at peak productive rate safely. Speeds changeovers to different types of production.

Jones Portable Hand Tachometers are continuous indicating, centrifugal movement, with guaranteed calibration. Lightweight, heavy-duty. Multi-range tachometer complete with 4" extension rod, convex and concave rubber tips, 12" circ. peripheral disc, centerpunch and carrying case . . . $60 FOB Stamford, Conn. Single range portables available in wide variety of ranges. Write for specifications.



JONES FIXED TEXTILE TACHOMETERS

Jones Fixed Textile Tachometers for permanent installations are continuous indicating over full-scale uniform 360° dial. Heavy duty, wide variety of ranges, and special dial indications. Specifications and prices upon request.

JONES MOTROLA

437 Fairfield Ave., Stamford, Conn.

ANTHONY LIFT GATE HYDRAULIC

Solves a manpower Problem!!

LOAD AND UNLOAD TRUCKS FASTER, EASIER, SAFER AT ⅓ THE COST

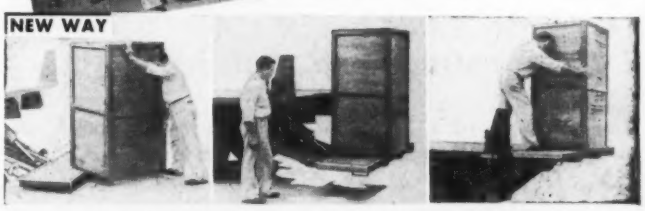
- SAVES MANPOWER—One man now does what 3 or more formerly did. And one man . . .
- CUTS LOADING AND UNLOADING TIME—Trucks are loaded and unloaded faster; keeps them on the move. Also...
- REDUCES PERSONNEL ACCIDENTS—Loads are lifted to body or lowered to ground by powerful hydraulic hoist mechanism controlled by one convenient lever. And . . .
- HELPS PREVENT ACCIDENTAL DAMAGE TO VALUABLE MERCHANDISE—No skids, chains, or cables to break or slip. Minimizes your damage losses.

***WRITE TODAY**—for the attractive, illustrated brochure which explains completely all details:*

ADDRESS DEPARTMENT T-1

●

← *3 Men Required to Load Truck*



On Easy — Raise Load With Power — Off Easy

ANTHONY COMPANY

STREATOR ARMY E NAVY ILLINOIS

OSCAR HEINEMAN CORPORATION

Throwsters Of Yarns

FOR THE HOSIERY TRADE

Quality Products for Fifty Years

We take pride in the fact that we were pioneers in the practical application of *Avconit in the sizing and processing of high twist Rayon yarns.

Our processing results in maximum production with a minimum of seconds and waste.

We are prepared to process your yarns to best meet your particular needs.

For best results have your yarns processed the *Avconit way by

HEINEMAN

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Aberfoyle Mfg. Co.,
123 So. Broad St.,
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813 Guilford Bldg.,
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C. D. Gott Company,
3303 Brainerd Road, Chattanooga, Tenn.

*Trade Mark
American Viscose Corp.

Ernst will be succeeded at the Old Hickory plant by E. E. Swensson, until recently on special assignment with the Explosives Department. Andrew E. Buchanan, Jr., has been appointed assistant manager of Du Pont's Rayon Technical Division succeeding Dr. G. W. Filson, who was appointed assistant manager of the Rayon Division several weeks ago. Robert G. Potter, district sales manager at Philadelphia since 1941 for the Rayon Division, will be transferred to Wilmington as manager of staple sales. He will be succeeded by D. L. Lewis, Jr., transferred from the Explosives Division Nov. 1. T. K. Woods, transferred from the Cellophane Division, will be in charge of district sales for rayon staple at New York.

The Yale & Towne Mfg. Co., New York, has appointed Richard S. Johnson as research engineer on the staff of chief engineer, Charles S. Schroeder, of the Philadelphia Division. Mr. Johnson was for ten years chief engineer of International Chain Co., York, Pa.

United States Testing Co., Inc., Hoboken, N. J., on Nov. 15 opened a branch office at 286 Congress Street, Boston 10, Mass., which will handle transit shipments of yarn, including the quantity testing of woolen and worsted yarns. Laboratories have been built to handle diversified chemical and physical tests on textiles and other materials. J. K. McWilliam will have general supervision of the Boston branch, and H. M. Block is Boston manager in charge of operations.

Celanese Corp. of America, New York, has changed the name of the selling organization for its plastics products from Celanese Celluloid Corp. to Celanese Plastics Corp.

Apex Chemical Co., Elizabeth, N. J., has appointed Sidney M. Weinstein as director of research and technical advisor to its planning board.

American Resinous Chemicals Corp., Boston, Mass., has opened a new pilot plant and additional research laboratories for investigation of monomer polymerization to produce new resins, and to coordinate developments in synthetics for paint, plastics, paper, textiles, leather and specialty rubbers.

P. S. DICKEY, who has been appointed chief engineer for Bailey Meter Co., Cleveland, Ohio. He was formerly research engineer.

Monsanto Chemical Co., St. Louis, Mo., has elected Felix N. Williams, general manager of its Plastics Division at Springfield, Mass., to be a vice president of the company.

Bakelite Corp., New York, unit of Union Carbide & Carbon Corp., has appointed Gilbert Shaw as manager of vinylite calendering and molding materials division, Thermoplastic Department, 30 East 42nd Street, New York.

Aluminum Co. of America, Pittsburgh, Pa., has expanded its Sales Engineering & Development Division by appointing three men to head up special activities. Frank Jardine, who has been in charge of development work in Cleveland, has been given the title of manager of development division, Cleveland branch. John R. Willard has been placed in charge of the Sales Development Division at New Kensington, Pa. B. J. Fletcher has been appointed chief engineer of the New Kensington Branch.

Iron & Steel Products, Inc., Chicago, Ill., have appointed David Newhall as vice president in charge of the New York district.

Sherman & Associates, New York, have appointed Otto Engelhard, formerly in charge of their tool designing, to be in charge of design and development of textile machinery for postwar.

Joseph T. Ryerson & Co., Chicago, has appointed Ralph Spang as sales representative in the territory covering North Carolina and Virginia. He will make his home in Greensboro, N. C.

SPEED SHIPMENTS TO ALL FRONTS

YOUR SHIPMENTS ARE IMPORTANT

CLEAR—EASILY READ—PERMANENT STENCILED ADDRESSED SHIPMENTS move thru the Shipping Room faster and are speeded all along in transit.

DIAGRAPH-BRADLEY FOUNTAIN STENCIL BRUSH —features: button type ink control—ink capacity for 1,200 to 1,500 addresses—positively will not flood, clog, smear, or leak—replaceable bristle tip—non-breakable leak-proof end.

DIAGRAPH-BRADLEY FOUNTAIN MARKING PENCIL —a leak-proof non-clogging marking pencil for use wherever a marking pencil is required.

COMPLETE SHIPPING ROOM SUPPLIES

FOR BEST RESULTS USE:
- D-B FOUNTAIN STENCIL BRUSHES
- D-B STENCIL CUTTING MACHINES
- D-B INKS
- D-B STENCIL BOARDS
- D-B FOUNTAIN MARKING PENCILS

D-B. DIAGRAPH-BRADLEY
STENCIL MACHINES
DIAGRAPH-BRADLEY STENCIL MACHINE CORPORATION
NO. 60 DIAGRAPH BRADLEY BUILDING
ST. LOUIS, 8, MISSOURI
DISTRIBUTORS IN PRINCIPAL CITIES

WORLD'S OLDEST AND LARGEST MANUFACTURER OF STENCIL MACHINES

NAUMKEAG STEAM COTTON CO.

Owners and operators of
PEQUOT MILLS . . . DANVERS BLEACHERY

COMMISSION BLEACHING DYEING AND FINISHING

- Direct dyeing
- Sulphur dyeing
- Vat dyeing
- Fast color Label and Tag Cloths
- Mechanical Fabrics
- Glazed Fabrics

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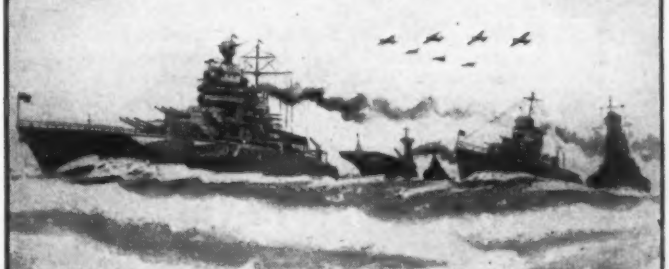
PEQUOT SHEETS AND PILLOW CASES

WHERE PEQUOTS ARE FINISHED

The Fleet Line

OF FINISHING EQUIPMENT

Fulling Mills • Washers — Batch and Continuous • Derby Dry Cleaners • Piece Dye Kettles • Stock Dye Kettles • Carbonizing Ranges • Dye Becks • Rope Soapers • Soaping Machines • Pusher Mills • Soap Distributing Systems • Top Dyeing Machines • Progressive Jigs • Yarn Steamers



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DYESTUFFS • DYEWOODS
CHEMICAL SPECIALTIES
for Textiles and Allied Trades

PROGRESSIVE RESEARCH

in War as in Peace

Our many years of experience in the manufacture of Quality Products enable us not only to meet the pressing problems of Today . . . but also to help you prepare for the requirements of tomorrow. We are pleased to place this experience and our research facilities at your disposal. Tell us how we may serve you.

A FULL LINE OF Dyestuffs, Converted Starches, Waterproofing Agents, Sulphonated Oils, Finishing Compounds, Penetrators, Detergents and other Chemical Specialties.

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Main Office and Works:

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Philadelphia · Chicago · Charlotte
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NEWS ABOUT *Men*

W. M. McLaurine, secretary and treasurer of the American Cotton Manufacturers Association, Charlotte, N. C., has asked to be retired by April 20, 1945, or sooner if possible. He has been with ACMA for 18 years and was previously for 2½ years with Cotton Manufacturers Association of Georgia.

James DeCamp Wise, New York attorney, has been elected president of Bigelow-Sanford Carpet Co., Thompsonville, Conn., to succeed the late John A. Sweetser. Mr. Wise assumed his new duties Dec. 1, after serving as general counsel for the company since 1932. He has been a director since 1939, and recently chairman of the executive committee. In 1940 and 1941 Mr. Wise was special assistant to Secretary of the Navy James V. Forrestal when he was undersecretary.

George H. Anderson, president, treasurer and general manager of the Virginia Mfg. Co., Fork Shoals, S. C., for more than 17 years, has disposed of his interest and retired from the management. **James S. Briggs,** Atlanta, Ga., has been elected president and treasurer, and **J. M. Batson,** Lavonia, Ga., general manager.

William H. Entwistle, president and general manager of Pee Dee Mills, Rockingham, N. C., was recently elected president and general manager of the Entwistle Mills to succeed his father, **George P. Entwistle,** who resigned to become chairman of the board.

James A. Akeroyd, of James Akeroyd & Co., was reelected president of Philadelphia Wool & Textile Association at annual meeting Nov. 10.

H. A. Tilton, of Fallon & Tilton, was elected president of the Boston Wool Trade Association on Nov. 21.

Charles S. Northen of Avondals Mills of Sylacauga, Ala., was elected head of the Carded Yarn Association at a recent meeting in Charlotte. He succeeds **Harvey W. Moore** of Brown Mfg. Co., Concord, N. C., who automatically became vice president of the group. **E. Owen Fitzsimons** re-elected secretary-treasurer.

George C. Lincoln, vice president and agent of Raylaine Worsteds, Inc., in Manchester, N. H., was reelected president of the New Hampshire Manufacturers' Association at its 32nd annual meeting in Man-

EDWIN LOEWY, of Cohn, Hall, Marx Co., New York, (left), and NETTIE ROSENSTEIN, famous New York dress designer, examine textile items exhibited by the Sew-For-Russia Committee of the Russian War Relief. The committee make use of scraps or ends donated by textile and garment houses.

1945

Our Best Wishes

For a really Happy Holiday Season—our Best Wishes to all, and especially to the millions of men and women who wear our country's uniforms. As proud as they are to wear these uniforms, there is no doubt that it will be a happy day for them —and for us all—when they can put away in mothballs the costumes of War, and don again the costumes of Peace.

Whichever costume Milady wears—if it's Dura Beau finished, it's better looking, longer wearing. Dura Beau imparts to fibres and fabrics "the film of protection," making good fabrics better and attractive fabrics beautiful.

DuraBeau finishes
Reg. U.S.A. and Canada

Scholler Bros., Inc.

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For the duration our shops are principally engaged on war work.

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CARD CLOTHING
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Tried and proved for over 46 years, superior Dary Ring Travelers form the first of two important essentials for complete spinning success.

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chester recently. Others named were: vice president, **S. Lane Dwinnel, of Lebanon;** treasurer, **Malcolm C. Mackenzie,** of Derry; executive secretary **John J. Cummings,** of Manchester.

Robert O. Huffman, Morganton, N. C., an offical of the Morganton Full-Fashioned Hosiery Mills, Garrou Full-Fashioned Hosiery Mills, Huffman Hosiery Mills, Drexel Hosiery Mills, and Drexel Furniture Co., former chief of knit goods of OPA and more recently the agency's price executive of the Manufactured Articles Price Branch, has resigned from government service but will continue as consultant.

Donald Comer, Jr., and **Tyson Smith** have been elected vice presidents of the Cowikee Mills, Eufaula, Ala., and **Alex Schaub** has been elected an assistant secretary.

Ernest L. Olrich, president of Munsingwear, Inc., Minneapolis, has resigned as head of the Office of Surplus Property, and returned to Munsingwear.

C. H. LeRoy has resigned as executive secretary of the Rayon Yarn Producers Group, New York, which office he has held since 1933. He entered the rayon industry in 1924 with American Viscose Corp. Between that date and 1933 he was secretary of the Rayon Fabrics Group and the Rayon Yarn Association.

John R. Montgomery, president of Blair & Co., Inc., has been elected to the board of directors of Textron, Inc., New York.

Joseph H. Callicott, formerly general manager of Se-Ling Hosiery Mills, Inc., Nashville, Tenn., a position he resigned on July 1, has become vice president and general manager of Nebel Knitting Co., Charlotte, N. C.

Donald K. Woodward, until recently sales manager of the Newnan Cotton Mills, Newnan, Ga., has resigned to become vice president of Mills, Inc., Taunton, Mass. He will also be general manager of the company's yarn division. Mills, Inc., operates a spinning plant formerly known as Nemasket Mills. Mr. Woodward was formerly vice president of Barnes Textile Associates, Inc., and at one time assistant to the president of Riverside & Dan River Cotton Mills.

DON P. JOHNSTON, for the last 10 years president and treasurer of the Royal Cotton Mill Co., Wake Forest, N. C., who has resigned and formed his own sales agency, Johnston & Co. The new organization handles the product of Royal Mill and will add other accounts in the post war period.

David Freedman, lately with L. Bachmann & Co., and the woolen and worsted department of Cohen, Hall, Marx Co., New York, has established his own firm, Judbar Fabrics, to specialize in men's and women's wear wool goods.

Howard C. McKenna has been elected vice president and general manager of the New Braunfels Textile Mills, New Braunfels, Tex., succeeding **Walter Dillard,** now executive vice president and agent for the Pomona Mfg. Co., Greensboro, N. C. Mr. McKenna joined the company in 1923.

Walter S. Montgomery, of Spartanburg, S. C., has resigned as treasurer and general manager of Gaffney Mfg. Co., Gaffney, S. C., a position he has held for the last 17 years. **W. A. L. Sibley,** of Union, S. C., treasurer of Monarch Mills, of Union, was elected to succeed Mr. Montgomery. **Robert P. Carson,** secretary and assistant treasurer, and **T. C. Drew,** superintendent, have resigned their positions with the same company.

S. Frank Jones, of Anderson, S. C., has been elected secretary and assistant treasurer of Calhoun Mills, Calhoun Falls, S. C., succeeding **E. M. Lander** who has been retired after serving in this capacity for 35 years. Mr. Lander will continue as a director.

Frank S. Nettleton, general superintendent of Hockanum Mills Division of M. T. Stevens & Sons., Rockville, Conn., has been named a director of the Manufacturers Association of

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In order to insure pins of uniform quality, we have installed a completely new HARDENING and TEMPERING Department for the production of pins of any type and in any size and quantity.

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RED CYPRESS

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NEW BEDFORD, MASS.

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Connecticut for Tolland County. **F. R. Hoadley**, president of Atwood Machine Co., Stonington, has been elected a director for New London county.

William R. Beuret has been named general manager of Amoskeag-Lawrence Mills, Inc., Amory Wosted Mills, Inc. and Kanmak Mills, Inc., Manchester, N. H. Mr. Beuret comes to Manchester from Botany Worsted Mills, Passaic, N. J., where he was employed in an executive capacity for the past fifteen years. **Manuel Roderiques, Jr.**, is superintendent of Amoskeag-Lawrence Mills, Inc., **Harold Brooke** is superintendent of Amory Worsted Mills, Inc., and **Fred Wahl** is superintendent of Kanmak Mills, Inc. **Arthur Hammer** is comptroller and **William C. Swallow** is personal director. The mill group is operated by **Mack Kahn**, as president and treasurer.

A. Griffin Ashcroft, director of research for Alexander Smith & Sons Carpet Co., Yonkers, N. Y., has been elected a director of the Textile Research Institute. He is also vice chairman of the Applied Research Committee of the institute and chairman of the Technical Committee of the Institute of Carpet Manufacturers of America.

L. E. Veale, general manager of the Baker-Mebane Hosiery Mill, Mebane, N. C., for the last 11 years, has resigned and moved to Knoxville, Tenn., where he has purchased a grocery store. **Melvin Holt**, manager of the plant in Boone, N. C., has returned to Mebane to be manager of that plant.

John F. Van Ness has resigned as head of the cotton price section of OPA to return to private industry. He will be succeeded by **Herbert Walmsley**, Great Neck, N. Y. Before joining OPA, Mr. Van Ness was superintendent of the velvet mills for Cheney Bros., Manchester, Conn., for 20 years.

J. Clark Samuel has been ap-

CALLAWAY PROMOTIONS

Callaway Mills, LaGrange, Ga., has made the following promotions:

Lewis Price has been promoted to vice-president and general manager of the MMC Division, succeeding J. H. Daughdrill, resigned. Mr. Price became connected with Callaway Mills in 1943, as industrial relations manager. He has been assistant vice president of the MMC Division since it was formed on Oct. 1, 1943.

Seth A. T. Newsom, who joined the Callaway organization in 1933 and has for several years been superintendent of the Unity Spinning and Oakleaf plants in the USEO Division, has been transferred and promoted to assistant vice president of the MMC Division, succeeding Mr. Price.

B. P. Albright has been promoted from superintendent of the Elm City plant to superintendent of the Unity Spinning and Oakleaf plants, succeeding Mr. Newsom. John Driver has been promoted from overseer to assistant superintendent of the Unity Spinning plant. He is succeeded by Boyd McClellan. Jesse Maddox is assistant superintendent of the Oakleaf plant.

E. H. Hines, Jr., who has been assistant superintendent of the Hillside plant in the HDV Division of the company, has been transferred to the USEO Division and promoted to superintendent of the Elm City plant, succeeding Mr. Albright. H. T. Mahaffey has been promoted from overseer of weaving to assistant superintendent at the Elm City plant. He is succeeded by Henry T. Heggood.

T. M. Hampton, formerly personnel director of the HDV Division, has been promoted to assistant superintendent, Hillside plant, succeeding Mr. Hines. W. C. Carriker, Jr., formerly job-standards engineer of the HDV Division, has been promoted to personnel director of the same division, succeeding Mr. Hampton.

John D. Harris, for many years office manager at the Manchester, Ga., plant of Callaway Mills, was recently promoted to plant manager, and C. E. Rich, superintendent of the Milstead, Ga., plant, was promoted to plant manager there. C. L. Taggart was transferred from superintendent of the Calumet plant of the company at LaGrange, to superintendent at Milstead, succeeding Mr. Rich, and Ernest O. DeFore was transferred from superintendent at Manchester to Calumet succeeding Mr. Taggert. O. Clarence Smith was promoted from assistant superintendent to superintendent succeeding Mr. DeFore at Manchester, where H. R. Criswell was made assistant superintendent, succeeding Mr. Smith.

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ALFRED W. CAVEDON

Spinners of Fine Woolen

Merino & Specialty Yarns

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DANA WARP MILLS

Westbrook, Maine

Cotton yarns, single and ply
Cotton warps, single and ply
Colored yarns and warps
Spun rayon—yarns and warps
Seamless grain bags.

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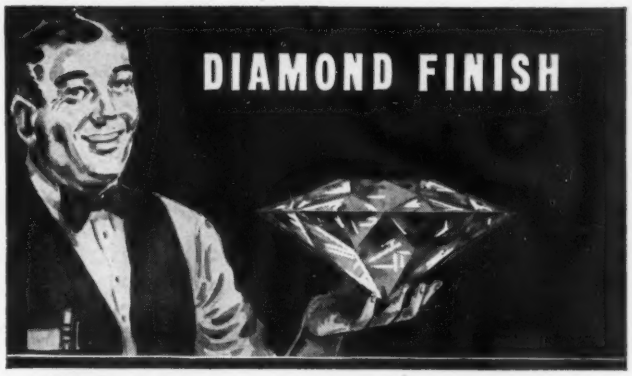
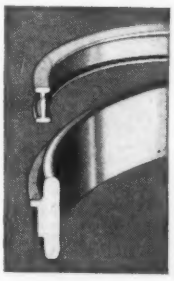


"Here's my guide to Ring Quality"



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NON-FLUID OIL helps increase production by doing away with oil spot damage. Still further savings are made on lubricant and application cost—for NON-FLUID OIL goes 3 to 5 times as far as ordinary oil.

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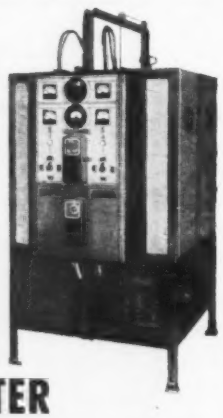
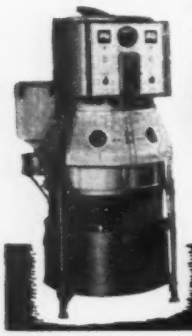
ATLAS TWIN ARC WEATHER-OMETER

Faithfully duplicates the combined weathering effects of sunlight, rain, and heavy dew; accelerated to reduce years of actual weathering to a few days' testing. All weather cycles automatically controlled for continuous operation without attention.





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The recognized standard testing machine in the textile field for determining the fastness to light of dyestuffs and fabrics. Fully automatic in operation.

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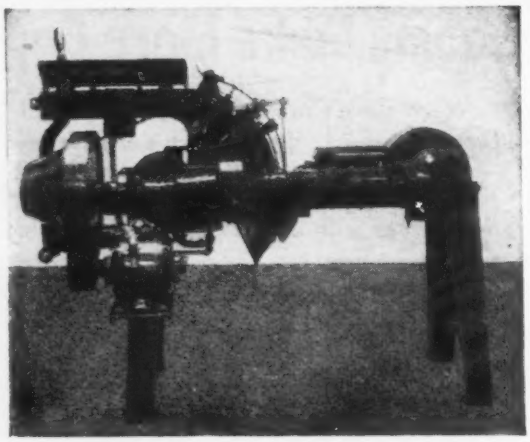

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Protects barrel and finish. Usually pays for itself in one year—always within 18 months.

Complete information promptly furnished upon request

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James F. Notman.....Needham, Mass.—N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J.—Penna., N. J. and N. Y.
Geo. Thomas & Co...Manchester, England—European Agt.

pointed director of public relations of Alexander Smith & Sons Carpet Co., Yonkers, N. Y. As public relations director of Anderson, Davis & Platte, Inc., New York advertising agency for Alexander Smith, Mr. Samuel handled phases of the company's publicity and sales promotion.

R. W. Strohmeier, directing production and sales, has been elected a vice president of Laros Textiles Co., Bethlehem, Pa.

Albert V. Wilmot has succeeded **John Catterall** as general superintendent at Naushon Mills, Inc., New Bedford, Mass. Mr. Catterall has resigned, but will continue in an advisory capacity. **Thomas S. Baines,** paymaster and purchasing agent since Naushon was incorporated and employed at the same plant for 30 years, has been made assistant treasurer and office manager.

J. B. Henriques has resigned as general purchasing agent of United Merchants & Manufacturers. **David Levy,** who has been with the firm for 12 years in charge of the traffic and insurance divisions, has assumed full responsibility as general purchasing agent. Mr. Henriques has become vice president in charge of purchasing and industrial chemical sales for the Arnold Hoffman Co.

Ramon Geibel has been made assistant sales manager of the Wholesale Women's Wear Division of Botany Worsted Mills, New York. For the last four years Mr. Geibel has been in charge of the Dress and Costume Department, under the direction of **Waldo Grose.**

Roy Jenkins has been made plant manager at North Grosvenordale, Conn., for Cluett, Peabody & Co. He succeeds **J. Milton Bradley,** resigned.

H. R. Whitener, formerly connected with several yarn mills in North Carolina, has joined the teaching staff of the North Carolina Vocational Textile School, Belmont, N. C., as instructor in yarn manufacturing.

States Roberson, formerly with Pickens Mill, Pickens, S. C., has accepted the position of paymaster at Belton Mills, Belton, S. C., succeeding **Dee Ellison,** who has become purchasing agent for Abney Mills, Greenwood, S. C.

Julian Merigold recently resigned as assistant to the president of the Worcester Knitting Co., Worcester, Mass.

R. Morris Frew, service manager of U. S. Rubber Co.'s plant, Charlotte, N. C., since July, 1942, and prior to that associated with Winnsboro plant has resigned to enter the real estate business.

Hoyt T. Hambright, personnel director at the Piedmont Heights plant of Burlington Mills Corp, Burlington, N. C., for the last two years, has resigned to become personnel director of the Rex-Hanover Mills and Aberfoyle Mfg. Co., Gastonia, N. C. He has been succeeded at Burlington by **Earl Edwards,** for the last 14 months director of personnel at Puritan Mills, Fayetteville, N. C.

Jack M. Huling has resigned his position with the North American Rayon Corp. to join the hosiery division of Burlington Mills, Greensboro, N. C.

Clyde M. Garrison, formerly office manager of High Point Weaving Co., High Point, N. C., has been appointed personal representative and assistant to **David A. Fiske,** who is in charge of Burlington Mills' offices. **George Gibhart** will assist him.

Chris Suber, superintendent of Toxaway plant of Gossett Mills, Anderson, S. C., has joined the Monarch Mills at its Lockhart, S. C., plant in similar capacity. He is succeeded at Toxaway by **Clarence C. Chavous, Jr.**

Laval Ricard Tessier, formerly at Woonsocket Spinning Co., Woonsocket, R. I., has become superintendent of dyeing at Malden Spinning & Dyeing Co., Malden, Mass.

C. M. Padgett has resigned as superintendent of carding at Brandon Corp., Woodruff, S. C., and has been succeeded by **D. A. Ross.** He was formerly with the Woodside Cotton Mills Co., Simpsonville, S. C., and the Brandon Corp., Greenville, S. C.

J. M. Bounds, superintendent of winding at the Southern Worsted Mills, Greenville, S. C., for the last 20 years, and prior to that superintendent of weaving at Cannon Mills, Kannapolis, N. C., for 16 years, has retired.

Smooth warps for easy weaving—

with Laurel RAYON SIZE*

Your rayon warps will be smoother, stronger, cleaner, more resilient and more resistant to atmospheric action if you use Laurel Rayon Size. Unlike ordinary sizes, Laurel Rayon Size penetrates and envelops the yarn—binds the filaments together. It reduces chafing and breakage, increases elasticity, equalizes variations in yarn tension. Does not shed. Removed quickly and easily in regular scour. Laurel Rayon Size gives high loom efficiency. Leaves cloth soft, smooth with good appearance and minimum defects.

Sizers and weavers throughout the industry tell us Laurel Rayon Size simplifies and speeds the weaving process. If you are not now using Laurel Rayon Size, save time and costs by sending for a trial order today. Available for immediate delivery. Our Laboratory Technicians will gladly recommend a formula to meet your exact requirements.

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Yarns

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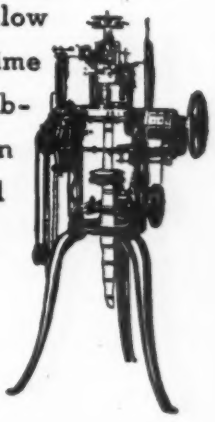
WE are here to supply what the country needs most—in War, or in Peace. • Right now —Uncle Sam says— "Build for War". When he says— "Build for Peace" – Brinton will follow the command. • In the meantime think about your Peace Problems and in terms of Brinton Knitting Machines. • We shall be glad to figure with you now, for peace-time requirements.



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...will step up your production . . . save labor and fuel costs

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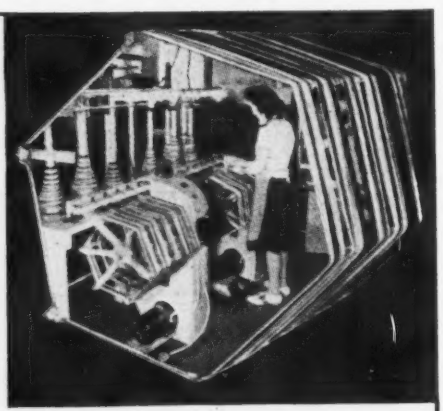
While one machine winds skeins, operator doffs other unit.



20% to 30% more skeins an hour..

up to 50% less floor area..

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Twin-unit System keeps your operators "on top of the work" with less fatigue. Collapsible arms on reels. Doffing a simple one-arm operation. Automatic yardage control. 50- to 60-second doffing cycle. Compact construction saves space, steps.

Two types. Double-End to wind 12 skeins, designed for rayon, nylon and the finer counts of yarn. Equipped with adjustable reels for skeins 33" to 60". Variable speed drive, 150-400 R.P.M.

Single-End, 6 skeins, for worsted and coarser counts of yarn. Operating speed, 103 R.P.M. Can be equipped with larger reel for skeins, 45" to 75" circumference. Single-End types may be equipped with variable speed. Write for bulletin.

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Men in Armed Services

Ely R. Callaway, in charge of purchasing cotton garments for the Army at the Philadelphia QM Depot, has been promoted to major from captain. Major Callaway, who has been at the Philadelphia Depot since before Pearl Harbor, is one of the Georgia family of cotton manufacturers.

Charles Edgar Graham Reeves, on leave from Reeves Bros. Inc., New York, has been promoted from captain to major. He entered the Army as a first lieutenant in 1942. He began his textile career with the Mills Mill, Woodruff, S. C., and later worked with the Fairforest Finishing Co., Spartanburg. In 1936 he joined the Reeves organization.

Henry M. Small, assistant paymaster at the Bibb Mfg. Co., Macon, Ga., prior to entering the service, has received the Bronze Star and Purple Heart for action in battle in Italy. He is an Army captain.

Robert Leeson, on leave from Universal Winding Co., Providence, R. I., and son of R. A. Leeson, chairman of the board, commanded a PT boat unit in the great naval battle of Leyte in the Philippines during the action Oct. 22 to 27. He is a lieutenant-commander in the Navy. The PT on which Lt. Comdr. Leeson took on a group of enemy ships at night and fired three torpedoes at a Japanese battleship at 1500 yd. The concussion of underwater explosions shook the PT but the fate of the Jap ship was not reported.

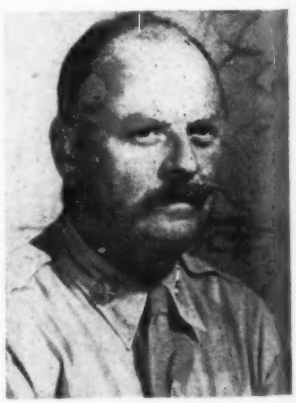
Larry Drombetta, a dyer with Ford Mfg. Co., Waterford, N. Y., who joined the Army in 1942, is now a sergeant serving as postal clerk with the headquarters group of the Y-Force operations staff in Southwestern China. He has led pack trains over the 10,000-ft. Kaoli Kung mountains, often under fire. The Y-Force is engaged in supplying and training the Chinese Expeditionary Force for the Salwean campaign.

Julian Robertson, president and treasurer of the North Carolina Finishing Co., Yadkin, N. C., now on leave as a lieutenant colonel, has been awarded the Army's Bronze Star medal "for meritorious service on the field of battle."

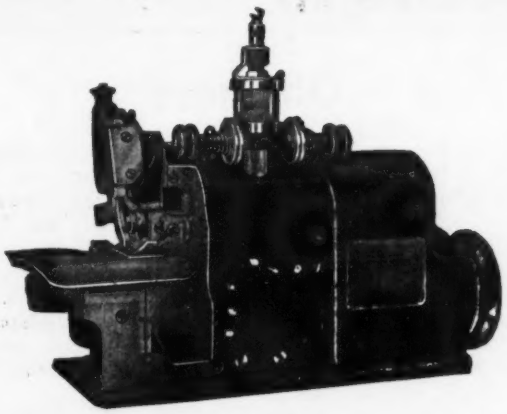
ROBERT S. STRIBLING, assistant in the Research and Development Division of the Philadelphia Quartermaster Depot, who has been promoted to the rank of captain. For ten years preceding his entrance into the Army, he served as chemist, foreman of dyeing, and superintendent of the Southern Bleachery & Print Works, Inc., Taylors, S. C.

L. T. Reagor, formerly of Avondale Mills, Sylacauga, Ala., is entering Georgia School of Technology, Atlanta, Ga., for the regular full textile course. Since 1942 Mr. Reagor has been serving the Anti-Aircraft Forces and is the first of the returned soldiers to apply for entrance at Georgia Tech.

"Bud" Schoonmaker, lieutenant (j.g.) in the Navy, formerly superintendent of the Gonic Mfg. Co., Rochester, N. H., recently spent a 15-day furlough at home.



GUSTAVE I. TOLSON, Army major attached to the Y-Force Field Artillery Training Center, who is teaching Chinese in the operation of American pack artillery in Southwestern China. He was formerly a partner in the cotton firm of George H. McFadden & Bros., New York, and is a veteran of the Mexican border campaign, World War 1, and Defense of Shanghai.



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Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work—Our Distributors or Our Direct Representatives Are on Call to Advise You Suitable Machine Arrangements for Various War Work and Proper Care and Operation of Machine.

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FRANKLIN, N. H.

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KNITTING MACHINES

meet the need for Speed—
for Quality and Low Cost

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is versatility . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

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Astonishing

How DEVOPAKE hides and covers *any* surface *in just one coat!*

Who's astonished? Why — maintenance men, factory managers, painting contractors — when they see how much time and money, how many manhours super-hiding DEVOPAKE saves them. Yes . . . it covers most *any* interior wall surface *in just one coat!* and it *lasts* because its *oil-base* protects — makes it stand repeated wash downs.

For complete guaranteed satisfaction — for money saved — specify DEVOPAKE. Be patient with your Devoe Agent if he is temporarily out of popular Devopake. War needs come first.

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FOR EVERY TEXTILE APPLICATION

PENETRANTS
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Burk-Schier Wet Processing Agents are made under careful plant and laboratory control. Technical service men always available.

BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE

MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

Obituary

F. Coit Johnson, 81, chairman of the board of J. H. Lane & Co., selling agents for West Bolyston Mfg. Co., Montgomery, Ala., and Crown Mfg. Co., Dalton, Ga., died recently.

Edwin M. Goldsmith, 80, inventor and retired textile manufacturer, died recently in Philadelphia, Pa. He formerly was president of Friedberger-Aaron Mfg. Co.

Paul Gifford, 54, treasurer of Bourne Mills, Tiverton, R. I., and former treasurer of Laurel Lake Mills, died at Fall River, Mass., recently.

Frank B. Ricketson, 70, vice president and secretary of Ponemah Mills, Taftville, Conn., died Nov. 21.

William L. Pierce, Jr., of National Starch Co., died Nov. 23 at Englewood, N. J. He had been president of National Association of Finishers of Textile Fabrics, 1930 to 1934, and connected with Bellman Brook Bleachery and Newburgh Bleachery.

Edward E. Horner, president of Horner Woolen Mills Co., Eaton Rapids, Mich., died Nov. 29.

William H. Hall, 50, of Charlotte, N. C., president and manager of the American branch of John T. Hardaker, Inc., British textile machinery firm, died in Lexington, Va.

Edwin H. Pinney, 79, Stafford, Conn., retired textile executive, died Nov. 13. He was with the former Phoenix Woolen Co. and the Swift River Woolen Co., and served 40 years as treasurer.

Eugene C. Perkins, 67, treasurer of Perkins Soap Co., Springfield, Mass., died recently. In 1916, he formed the Dunker & Perkins Co., in Boston, and in 1924 organized the Perkins Soap Co., of which he had since been treasurer.

Frederick Alton Abbot, 69, of Asheville, N. C., head of the textile department at Mississippi A. & M. College for many years, died in Atlanta, Ga., recently.

John Walter Maughan, 38, vice president and managing director of Leach Textiles, Ltd., Huntingdon, Que., died recently.

Edward Lincoln Durgin, 78, for 40 years engaged in business with the Stewart-Hartshorn Co., of New York, as director and treasurer, and at one time interested with the Stewart-Hartshorn interests in Joanna Cotton Mills, Goldville, S. C., died recently at his home at Goldville.

John Peter Hummel, 79, founder and chairman of the board of Hummel-Ross Fiber Corp., Richmond, Va., died recently.

Joseph L. Vergilio, founder and owner of J. L. Vergilio Co., Cleveland, Ohio, died recently. He represented Cochrane Corp., Associated Research, Inc., Buffalo Meter Co., Esterline-Angus Co., Hays Corp., Magnetrol Inc., Simpson Electric Co., and Vulcan Soot Blower Corp., in the Cleveland area.

James E. MacDougall, 53, for a quarter of a century prominently identified with the textile industry of the South, died Nov. 11 in Charlotte, N. C. He had been connected with Smith Drum & Co., Philadelphia, for 20 years. In 1936 he went to Charlotte as manager of the company's southern branch. He left this position to become manager of WPB's Carolina district agency, resigning that post last February because of ill health.

Joseph William Hawthorne, 47, secretary and general manager of Jewel Cotton Mills, Thomasville, N. C., died Nov. 2 in Winston-Salem, N. C.

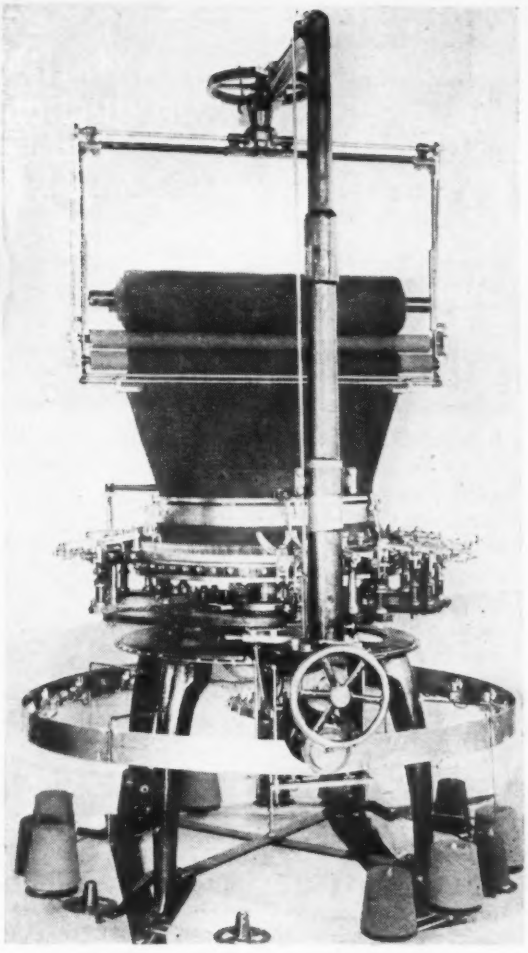
Frank Asbury Gaylord, 86, of Manhattan Beach, Calif., for 38 years identified with Interwoven Stocking Co., of which he became vice-president and western sales manager, died recently.

Grover W. Foster, 55, for 38 years purchasing agent for Proximity Mfg. Co., Greensboro, N. C., died recently.

John O. Corbett, 63, for the last four years office manager of Locke Cotton Mills, Concord, N. C., died Nov. 10 at Charlotte, N. C.

Ralph William Evely, Sr., 48, foreman at the Amphill plant of E. I. du Pont de Nemours & Co., died in the Petersburg Hospital recently.

Single Head Spring NEEDLE Knitting Machine



PRODUCES 100 YARDS PER 8 Hr. DAY

The New S-1 Single Head Spring Needle Machine is especially designed for overcoating materials. At the same time, *any* fabric can be knit on it that is knit on the older type spring needle table!

Production is approximately 100 yards per 8 hour day, using 6 feeds.

Features: Electrical driven by V belt simplified motor drive . . . electrical yarn stop motion . . . and needle stop motion.

Install one of these machines today, and in a few hours after reaching the mill it will be ready for operation!

For details write us direct.

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ARTIFICIAL LEATHER
-COATED FABRICS-
Slit into strip and wound into rolls all in one operation with
CAMACHINE 9-5
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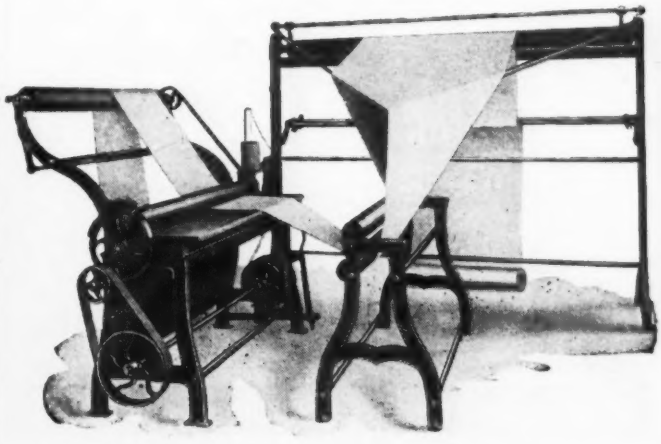
SPRING BEARD KNITTING NEEDLES

For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

NEW BRUNSWICK NEW JERSEY



No. 27—IMPROVED DOUBLING AND TACKING MACHINE

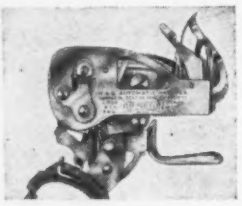
Sewing any length stitch up to 1¼ in., making a firm, strong stitch for any weight or width of goods. This machine is equipped with our latest oscillating needle bar sewing head, which makes it the fastest tacking machine on the market for tacking the selvages of woolen and worsted fabrics. For further information, send for our catalog.

DINSMORE MFG. CO.
SALEM, MASS.

"This Knotter makes old hands of green hands"

ABINGTON WEAVER'S KNOTTER

Old hands knot faster and surer than ever before — and green hands keep up the pace, too — when they use this weaver's knotter. No tails to clip, that's done automatically, and with controlled uniformity, any desired length from ¼ down to minus 1/16". Produces a definitely superior knot, especially appreciated in critical yarns, as for thread or rubber coated fabrics.



REQUEST KNOTTER CATALOG

ABINGTON

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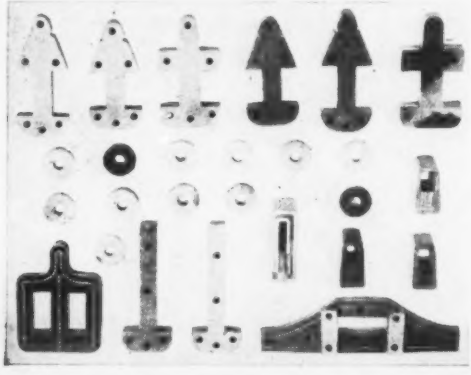
Vacuum Card Strippers – Yarn Dyeing Systems – Weaver's Knotters
OFFICES AT BOSTON, MASS. • CHARLOTTE, N. C.



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Textile Leather Products

Made to order—your own specifications or your own pattern—is our specialty. And because of our highly developed manufacturing facilities and experienced workers we also get economical production on every *customized* order.

CHAMPION

W. D. DODENHOFF COMPANY
INCORPORATED
GREENVILLE, SOUTH CAROLINA

NEWS ABOUT Mills

Cotton Mill News

Alabama Mills, Inc., has sold two of its units at Haleyville and Russellville, Ala., to the Crest-Tex Mills, Inc., of New York. Morris David and Courtland Palmer, both of New York, formed Crest-Tex Mills, Inc., a Delaware corporation, with a paid in capital of $25,000, to purchase the mills. David is president of the company and Palmer is secretary-treasurer.

Aldora Cotton Mills, Barnesville, Ga., are spending more than $400,000 in modernizing two mill villages. The Frank Binford Construction Co., which recently enlarged the mill plant at a cost of about $200,000, has the contract.

Canadian Cottons, Ltd., Milltown, N. B., have plans under way for addition to local St. Croix Mill, reported to cost close to $50,000, with equipment.

Cherry Spinning Co., with principal office at Cherryville, N. C., has been chartered with authorized capital of $100,000 to buy, sell, and deal in cotton mill products. L. Edwin Rudisill, G. E. Rudisill and Carl S. Rudisill, all of Cherryville, were listed as the principals.

Coventry Co., Coventry, R. I., recently purchased the Virginia Braid Co., Charlotteville, Va. The latter manufacturer of braids, edgings and trimmings, has been re-named Virginia Textiles, Inc. It has 800 braiders, 12 flat knitting machines, and four sewing machines.

General Webbing Corp., Springfield, Mass., will award contract soon for one-story addition, reported to cost close to $85,000, with equipment. James H. Bigelow & Associates, 14 Irving Pl., Springfield, are architects.

Harmony Grove Mills, Commerce Ga., have awarded contract to Fennell Construction Co., Gainesville, Ga., for an addition. The plans were prepared by J. E. Sirrine & Co., Greenville, S. C.

Lavonia Mfg. Co., Lavonia, Ga., has recently completed extensive improvements. The company is engaged in manufacturing cotton yarn.

Little Rock Textile Co., Little Rock, Ark., sustained a fire loss recently, reported over $35,000, with equipment. It is planned to rebuild.

Lonsdale Co., Providence, R. I.—Royal Little, president of Textron, Inc., has offered to purchase 85% of the company's stock. He stated operations would be continued with present name and personnel, and purchase would in no way involve the resources of Textron, Inc.

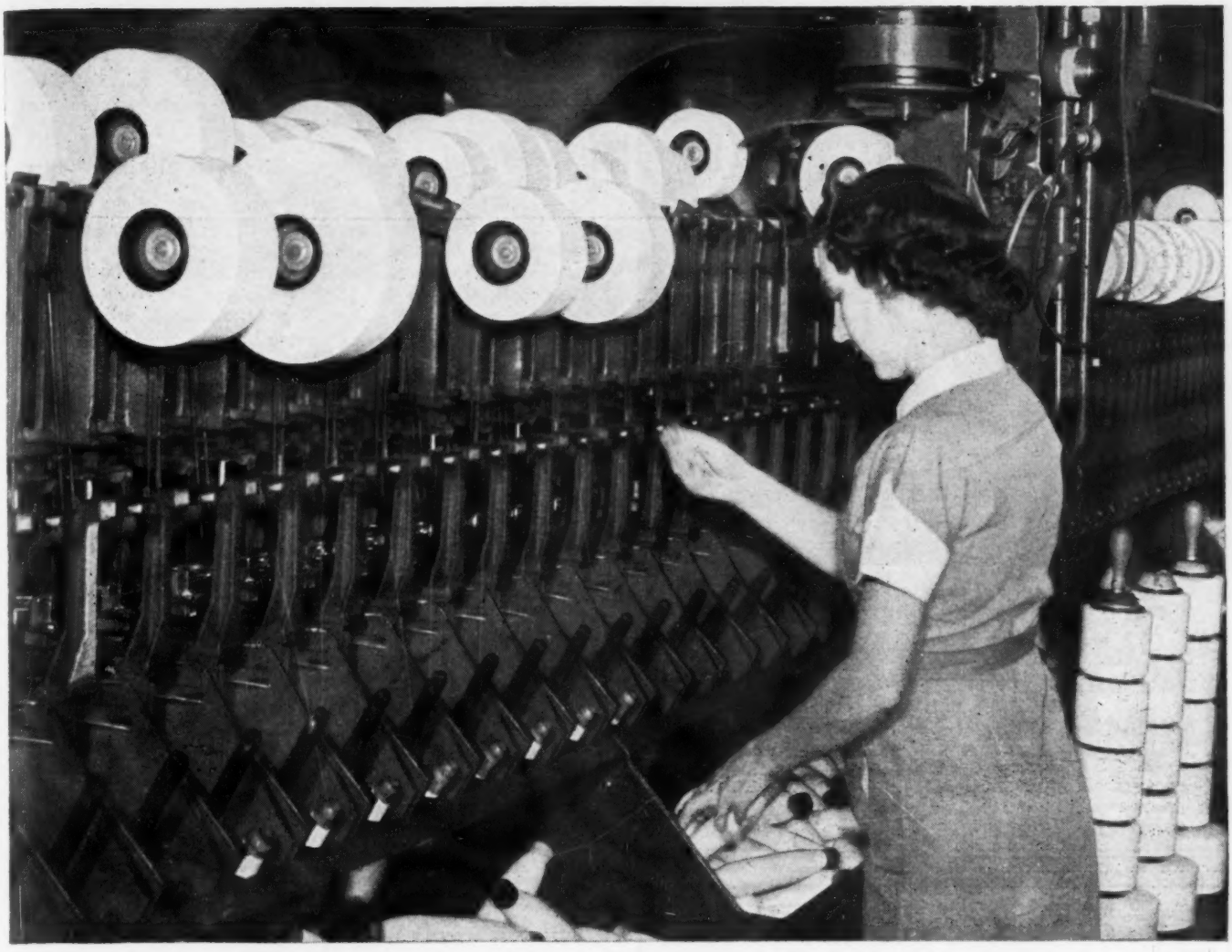
Pepperell Mfg. Co., Lindale, Ga., has begun construction of a new waste disposal plant. The contract is in charge of Ledbetter & Johnson, Rome, Ga., Robert & Co., Atlanta, Ga., prepared the plans.

San Joaquin Valley Commercial Secretaries Association, Fresno, Calif., recently heard a report by C. P. Wood, New York engineer, on the possibilities for establishment of a cotton mill in Central California, specifically in Kern, Tulare and Kings counties. Lockwood Greene Engineers, Inc., have been engaged by those counties to make the survey.

Tabor Mills, New Bedford, Mass.—Spinning and carding departments of this mill have been purchased by Samuel Elias and Frank Russo, operating a textile cutting and handling plant, who will occupy for expansion.

Wool Mill News

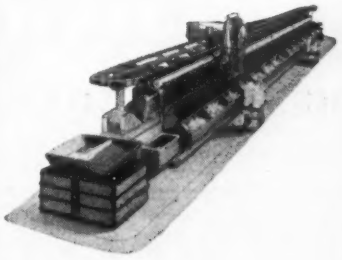
Briggs' & Little's Woolen Mill, York Mills, N. B., is being rebuilt to replace the plant destroyed by fire several months ago. The building will be 38 x85 ft., with a dyehouse and boiler house 40 x 24 ft. adjoining the main plant. The



Automatic Spooling Means Better Weaving

IT HAS been proved through careful checking in a number of different mills and on various classes of goods that the Barber-Colman Automatic Spooler is responsible for the majority of weave room improvements gained through use of the Barber-Colman System of Spooling and Warping. Better weaving is obtained through maintenance of uniform quality in the yarn. The Automatic Spooler accomplishes this desirable condition by a combination of distinctive features. The yarn is wound from the bobbin onto the cheese at high speed and with light, uniform, air-friction tension, retaining all possible elasticity and removing kinks pneumatically. A mechanical weaver's knotter assures uniformly small knots with short tails. Adjustable snick plates catch the gouts, slubs, and wild yarn and break out the end before such faults have a chance to be wound in. The result is that yarn wound on Barber-Colman Automatic Spoolers, when it reaches the weave room, will weave better with a substantial reduction in loom stops. This leads to increased production, better quality product, and lower weaving costs. Remember, it is the Automatic *Spooler* which gives you these advantages. The data from which these conclusions are drawn is available for your inspection. Ask your Barber-Colman representative.

BARBER-COLMAN



AUTOMATIC SPOOLER

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

BARBER-COLMAN COMPANY

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RED RAY RADIANT HEAT BURNERS SPEED UP DRYING OF THICK FELTED GOODS

A single 119 inch Red-Ray Burner applied to cans for drying inch thick felted material. Drying speed increased 60 per cent.

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Southern Representatives:

CAROLINA SPECIALTY COMPANY — **CHARLOTTE, N. C.**

New England Representative: G. D. YEATON, Hornbine Road, Swansea, Mass.

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Exclusive design—Exclusive advantages

• Scott Testers incorporate numerous advantages of design and recording which make them simpler, surer and more convenient to use. Our 60 models cover the needs of the textile industry for tensile, hysteresis, flexing, twist, burst, crepeage, etc.

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For

WEAVERS-KNITTERS

MONTGOMERY

WINDSOR LOCKS, CONN.

Designers and Spinners of Novelty Yarns

buildings are of brick with cement floors in dychouse and boiler room.

Chaberay Mfg. Co., Inc., Woonsocket, R. I., recently incorporated with capital of 100 shares of stock, no par value, plans operation of a local worsted yarn mill. Emile A. Benoit, 661 Front St., Woonsocket, is principal incorporator.

Chas. P. Cochrane Co., Bridgeport, Pa., and its affiliate, Blueridge Co., Glasgow, Va., will be consolidated on Jan. 1 into one company to be known as Lees-Cochrane Co., the parent company of which is James Lees & Sons Co., Bridgeport, Pa. The organization has just opened a new show room in New York.

Massachusetts Mohair Plush Co., Lowell, Mass., has bought the mill building at Salmon Falls, N. H., formerly occupied by Miller-Hermer Shoe Co., and will use it for a branch plant.

Peerless Weaving Co., Pawtucket, R. I., has arranged for change of name to Peerless Mills Co., Inc.

Princeton Worsted Mills, Inc., Trenton, N. J., have work under way on one-story addition, for which general contract recently was let to Charles B. Pharo, 510 Hermitage Ave., Trenton.

Putnam Worsted Mills, Inc., Putnam, Conn., have been chartered with capital of $100,000, to operate a local mill. Incorporators include P. E. and Y. E. Laime, Putnam; and James E. McGloin, Manhasset, N. Y.

Rock River Woolen Mills, Janesville, Wis. (previously reported), have let contract to Severson & Schlintz, 1002 Beloit St., Janesville, for one-story addition, about 30 x 75 ft., together with improvements in present mill. Cost about $35,000, with equipment.

Sangerville Woolen Co., Sangerville, Me., suffered $75,000 fire damage to its Carleton Mill Nov. 27. Carding and spinning machinery were destroyed.

Woonsocket Garnetting Co., 533 Social St., Woonsocket, R. I., has filed notice of organization to operate a local W. A. Thornhill Building, in mill. A. M. Vina, 50 Warwick St., Woonsocket, is head.

Rayon & Silk Mill News

American Enka Corp., Enka, N. C., is increasing its water supply, with work now going forward on laying a 5½-mile pipe line from its plant to the French Broad River, with Reed & Abee, Inc., in charge. V. B. Higgins Co. has the contract for constructing the pumping station. The project will represent a cost of $350,000.

Artistic Weaving Co., Pompton Lakes, N. J., is considering rebuilding one-story warehouse, recently damaged by fire. No official estimate of loss announced.

Sidney Blumenthal & Co., Inc., Cumberland, R. I., have plans for one-story addition, reported to cost about $45,000, with equipment.

Burlington Mills Corp., Greensboro, N. C.—Formation of Burlington Mills of Australia, Ltd., has been announced by Britt M. Armfield, vice president and a director of Burlington Mills Corp., who has just returned from Australia. The new company will weave rayon and other synthetic fibers. Under a plan worked out with the Commonwealth Government and a group of Australian business men headed by Robert J. Webster, Burlington Mills of Australia have leased a government munitions plant at Rutherford, near Newcastle. This plant will work on war materials for the duration but will switch to civilian fabrics after the war. The new organization has also taken over Tapitex, a going concern which normally makes draperies, tapestries and upholstery fabrics, but which recently has been manufacturing blankets and other woolen goods for war purposes.

Century Ribbon Mills, Inc., (Ernest & Herman Levy), a New York corporation, has reduced its capital to $2,000,000 and eliminated its preferred stock.

The E L Mansure Co. manufacturers of drapery and upholstery materials, has moved equipment to Bluefield, Va., from Bluefield, W. Va. The company will be located in the

Style 20

LANE

The IDEAL BASKET for

LOOPERS

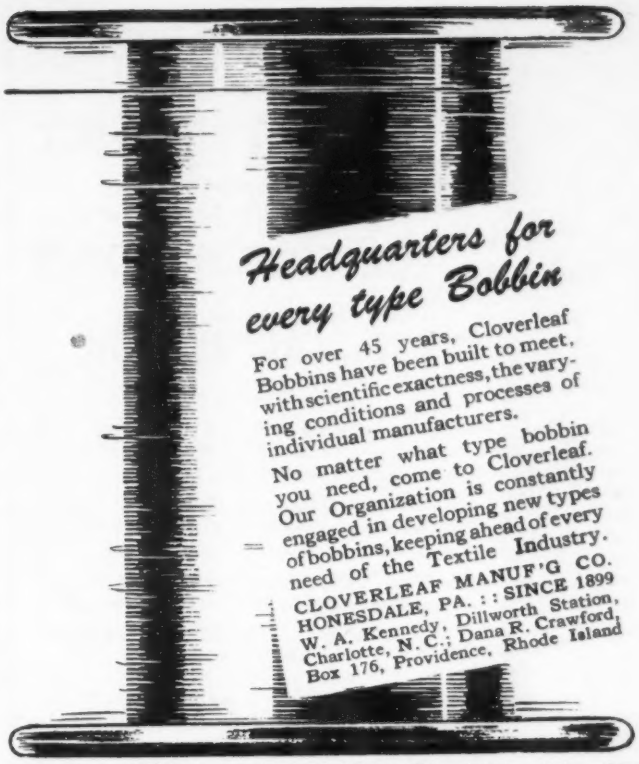
SEAMERS

RIBBERS

GENERAL

W. T. **LANE** & BROS., Inc.

Manufacturers : POUGHKEEPSIE, N. Y.



Headquarters for every type Bobbin

For over 45 years, Cloverleaf Bobbins have been built to meet, with scientific exactness, the varying conditions and processes of individual manufacturers.

No matter what type bobbin you need, come to Cloverleaf. Our Organization is constantly engaged in developing new types of bobbins, keeping ahead of every need of the Textile Industry.

CLOVERLEAF MANUF'G CO.
HONESDALE, PA. : : SINCE 1899
W. A. Kennedy, Dillworth Station, Charlotte, N. C.; Dana R. Crawford, Box 176, Providence, Rhode Island

CLOVERLEAF *Bobbins . . . . . .*

New type cone drive spindle and bobbin available at end of war.

MURDOCK Bobbin Holders

Two exclusive Features Affording Long Life:

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.
2. Holding wings hold positively in position by skeleton washer — no sliding around.

We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins.

Holders for all types of mules, frames, twisters, and winders.

MURDOCK & GEB CO., Franklin, Mass.

Manufacturers of Bobbin Holders for Over Fifty Years

NEW MODEL • HIGHEST ACCURACY
CHRONOMETRIC
TACHOMETER

Readability to 1 RPM per division. Guaranteed accuracy well within ½ of 1%. Indicates RPM directly on the dial without any calculations over a fixed period of 6 seconds. Negligible torque. Two models with ranges 0-1000 RPM or 0-10,000 RPM, each suitable for double rated range.

Write for Bulletin No. 715

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ALL STEEL ECONOMY BALING PRESSES

ALL SIZES FOR ALL PURPOSES

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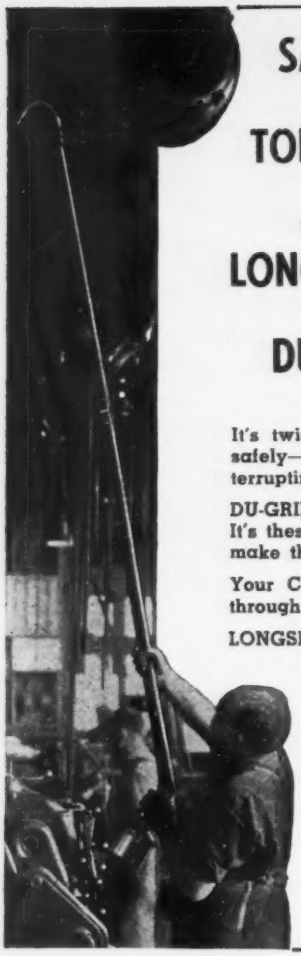

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maintain

TOP BELT EFFICIENCY

at lowest cost

Lubricate belts with our

LONGSHOT BELT OILER

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without a ladder

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Specializing in

TEXTILES FOR MORE THAN A QUARTER OF A CENTURY

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Reduces waste and Stabilizes the production rate in many operations

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BOX 268, PORTLAND, MAINE

space formerly occupied by Cannon Furniture Co. Extensive improvements have been made to the building.

Newmarket Mfg. Co., Lowell, Mass., has been acquired by Walter B. Gallant, Clinton C. Griffith, and Melville Weston, all connected with company for a number of years, who will continue operations as heretofore. Control previously was held by American Associates, Boston, Mass.

R. & B. Weaving Co., Paterson, N. J., has been chartered with capital of 100 shares, to operate a local rayon mill. Abraham Ratzken, 370 East 28th St., Paterson, is principal incorporator.

Raycrest Mills, Inc., Providence, R. I., care of Frank H. Swan, Turks Head Bldg., Providence, attorney and representative, have been chartered with capital of 500 shares of stock, no par value, to operate a local rayon mill.

John C. Welwood Corp., operating ribbon mills at Belvidere, N. J., Norwich, N. Y., and Murfreesboro and Winchester, Tenn., has been sold to the R. G. Buser Silk Corp., of New York, which operates two mills in Paterson, N. J., and other mills in Piermont and Jamestown, N. Y. No change is contemplated in the production set-up at Welwood.

Knitting Mill News

Adair Knitting Mills is the firm name under which George Bieber and Frances Klamerus have published a certificate that they are conducting business at 814 South Figueroa St., Los Angeles, Calif.

Alamac Knitting Mills Co., 6 West 18th St., New York, N. Y., has leased floor in building at 203 East 18th St., and will occupy for expansion.

Beaunit Mills, Rockingham, N. C., to be known as Phoenix Mills, Inc., Rockingham, N. C., is making the installation of its first equipment.

Belmont Hosiery Mills, Belmont, N. C., has plans underway for a new proposed mill, to be constructed as a postwar project, with H. V. Biberstein, of Charlotte, N. C., as the architect. The mill structure will be about 80 x 250 ft., three stories, and will cost more than $150,000.

Canadian U. S. Knitting Co., St. Hyacinthe, Que., has plans under way for one-story addition, to cost close to $60,000, with equipment.

Chadbourn Hosiery Mills, Inc., Burlington, N. C., will increase its capital to $1,000,000, consisting of $500,000 preferred and $500,000 common. J. C. Bolles, president of the firm, which also operates plants at Gibsonville, N. C., and Shenandoah, Va., said that the financing program was adopted to provide funds for an expansion program which will include the purchase of a large number of knitting machines.

Chester Yarn & Novelty Shop, Inc., Portchester, N. Y., care of Kavey & Karnes, 8 South Main St., plans operation of local knitting mill.

Circle Bar-Knitting Co., Ltd., Kincardine, Ont., is completing plans for four-story addition, about 60 x 100 ft. Cost over $100,000, with equipment.

Frye Knitting Mills is the firm name under which K. W. Frye has published a certificate that he is conducting business at 610 South Marengo avenue, Alhambra, Calif.

Gloversville Knitting Co., Gloversville, N. Y., is operating the Royalknit Glove Co., Johnstown, N. Y., as its Royalknit Division. Under the direction of E. F. Vonderahe, manager, the products and policies are the same as before.

Harriman Hosiery Mills, Harriman, Tenn. — Burlington Mills Corp., Greensboro, N. C., has purchased an interest in Harriman Hosiery Mills. With the additional capacity provided by Harriman's 1,500 fine-gage circular machines, Burlington Mills plans to offer a complete line of seamless and full-fashioned nylon hosiery after the war. The Burlington Hosiery Sales Co. will sell the Harriman production, but apart from this the Harriman management will continue, M. W. Walker being president and James Tarwater vice-president in charge of manufacturing.

Harvelle Hosiery Mills, Asheboro, N. C., have extensions and improvements going forward.

Marinette Knitting Mills, Marinette, Wis., have let con-

STANDARD SILICATES

KIER BOILING

For better whites and level results, use a pound of STANDARD Grade 40 Silicate with each 3 to 5 lbs. of caustic in your kier boiling formula. Troublesome stains are eliminated and scarce chlorine is saved.

Ask the STANDARD service staff about grey sour-silicate kier boiling procedure for better whites with less bleach.

ALKALI

DIAMOND
ALKALI COMPANY
STANDARD SILICATE DIVISION
GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA
Plants at CINCINNATI • JERSEY CITY • LOCKPORT, N. Y.
MARSEILLES • DALLAS, TEXAS

THE STANDARD DE-SIZING AGENT

RAPIDASE

Dependable, speedy and economical de-sizing . . . Our technical staff always at your service.

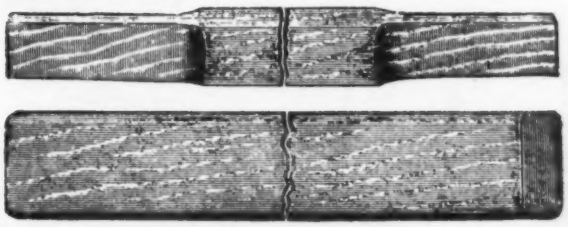
for cottons rayons and mixed goods

WALLERSTEIN CO., INC.
180 MADISON AVENUE, NEW YORK

ROME SOAP MFG. CO.

MANUFACTURERS OF
Textile, Laundry
and
Special Soaps
ROME, N. Y.

WRITE US FOR SAMPLES AND QUOTATIONS



A
DYE STICKS

Since 1900 we have made high quality true-form oven-seasoned dye sticks for all standard machines. We can fill your needs today to meet any requirements. Write

FRANK BAILEY **Cedar Brook, N. J.**

WE'VE LEARNED A LOT IN OUR 50 YEARS

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell service, which includes Stainless Steel-lined tanks and tubs—round, rectangular and special shapes. *Catalog on request.*

W. E. CALDWELL CO.
INCORPORATED
2060 Brook St. Louisville, Ky.

Caldwell TANKS and TOWERS

D. R. KENYON & SON
RARITAN, N. J.

TENTERING and DRYING MACHINERY

AMERICAN

. . . more economical to use because . . . .

it runs more efficiently, producing a finer quality product that can be sold easier and more profitably

AMERICAN
YARN AND PROCESSING CO

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Sales Manager, E. F. REDDING, MOUNT HOLLY, N. C.

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Mr. E. W. Wood
222 West Adams St.

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J. E. SIRRINE & CO.
GREENVILLE • SOUTH CAROLINA

Engineers

TEXTILE MILLS • CHEMICAL PROCESS PLANTS
PULP & PAPER MILLS • WASTE DISPOSAL
STEAM POWER PLANTS • STEAM UTILIZATION
WATER • APPRAISALS • PLANS • REPORTS

***Simplified* DESIGN**
***Flexible* POWER**
***Better* EVAPORATION**
***More sensitive* CONTROL**

SOUTHWORTH HUMIDIFIER

Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.

NOTE
This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.

THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

tract to C. H. Danielson, 708 Stephenson Ave., Menominee, Wis., for new one-story boiler house, 20 x 43 ft. Cost over $30,000, with equipment.

Merit Underwear Co., Inc., Shoemakersville, Pa., has been chartered with capital of $300,000, to take over and expand company of same name.

Morristown Knitting Mills, Inc., Morristown, Tenn., has purchased the machinery and equipment of Bell Hosiery Co., Suffolk, Va., and the machinery will be moved to Morristown. The Bell Hosiery Co., which had been in business for 30 years, closed in April, 1942.

Munsingwear, Inc., Minneapolis, Minn., is about to start up a plant at Albert Lea, Minn., to be devoted to manufacture of women's tricot slips. Munsingwear already has other branch plants located at Bemidji, Montgomery, and Little Falls, Minn.

Nebel Knitting Co., Inc., Charlotte, N. C., has been chartered with capital of 5000 shares of stock, no par value, to take over and operate local company of same name, with mill on West Worthington Ave.

Needham Knitting Mills, Inc., Needham, Mass., recently incorporated with capital of 500 shares of stock, will take over and operate company of same name with local mill. Macey H. Wolfson and A. J. Sherer are president and treasurer, respectively.

Silver Knit Hosiery Mills, Inc., High Point, N. C., plans installation of additional equipment for plant expansion.

Warren Bros., Ltd., St. Catherines, Ont., have erected a one-story addition to their plant. Production facilities will be increased about 30%.

Processing Plant News

Bronx Piece Dye Works, Inc., Paterson, N. J., care of Louis C. Rosenthal, 7 Church St., Paterson, attorney and representative, have been chartered with capital of 2500 shares of stock, no par value, to operate a local dyeing and finishing mill.

Cherokee Dyeing & Finishing Co., Gaffney, S. C., has been awarded a South Carolina charter. W. C. Hambrick is president and treasurer.

Consolidated Piece Dyers, Ltd., Cobourg, Ont., are erecting an addition to their plant in Montreal. The addition will contain 5,000 ft. of floor space, one story, with brick walls.

Eureka Printing Co., Clifton, N. J., has begun erection of two-story and basement addition, about 80 x 160 ft., for which general contract recently was let to Austin Co., 19 Rector St., New York, N. Y. Cost about $140,000, with equipment.

Inter-State Dyeing & Finishing Corp., Passaic, N. J.; **Quaker Lace Co., Inc.**, Philadelphia, Pa.; and **The United States Finishing Co.**, Sterling, Conn., have been appointed finisher licensees under the American Viscose Corp's, "Crown" Tested Plan.

Textile Printing & Finishing Co., Lebanon, Pa., has work under way on one-story addition, for which general contract was let to D. L. Saylor & Son, Annville, Pa. Cost reported close to $85,000.

United Textile & Merchants Mfg. Co. of Delaware plans construction of a rayon finishing plant at Old Fort, N. C.

Vitromar Piece Dye Works, Paterson, N. J., care of Charles H. Roemer, 144 Market St., Paterson, has been chartered to operate a local dye, print and finish mill.

Miscellaneous Mill News

Derry Fiber Mills, Inc., Derry, N. H., are considering early rebuilding of four-story mill, recently damaged by fire, with loss reported close to $100,000, with equipment.

Industrial Plants Corp., New York, is reported to be interested in acquisition of textile plants in Pennsylvania and Virginia on behalf of Mexican interests. There is said to be over $1,000,000 to be spent. The company has an office in Mexico City at 90-48 Avenida Uruguay. Alberto Sonso Devereaux, member of the Department of Indian Affairs of the Mexican Government is one of the principals representing the Mexican interests.

MAILING LISTS THAT

WORK . . .

McGraw-Hill Industrial Mailing Lists are a direct route to today's purchase-controlling executives and technicians in practically every major industry.

These names are of particular value now when most manufacturers are experiencing constantly increasing difficulty in maintaining their own lists.

Probably no other organization is as well equipped as McGraw-Hill to solve the complicated problem of list maintenance during this period of unparalleled changes in industrial personnel. These lists are compiled from exclusive sources, based on hundreds of thousands of mail questionnaires and the reports of a nation-wide field staff, and are maintained on a twenty-four hour basis.

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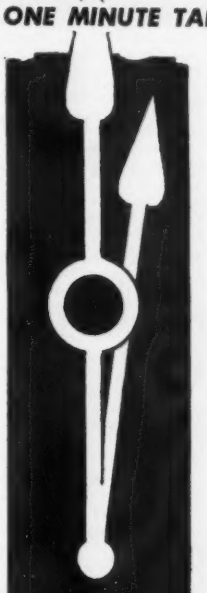
ONE MINUTE TALKS ON



Descaling Diesel Cooling System

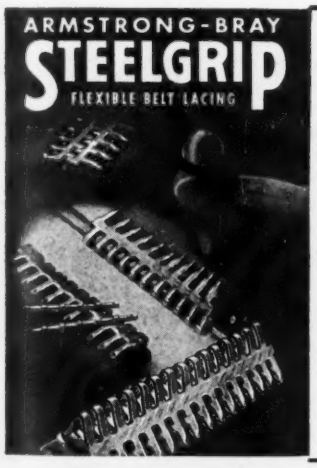
If you have a Diesel installation, the time eventually occurs when lime-scale deposits build up in water jackets to the extent that proper heat transfer is prevented . . . Scored cylinders, loss of power, increased oil consumption . . . any or all may be indications of this condition.

And the answer to this common trouble is preventive maintenance. Treat cooling system periodically with Oakite Compound No. 32. Its specialized action QUICKLY, effectively removes lime-scale and rust that impair proper heat transfer . . . restores system to normal, more economical operating efficiency.

Write for FREE 28-page manual containing helpful recommendations for this important maintenance job.

OAKITE PRODUCTS, INC.
42 Thames Street, New York 6, N. Y.
Technical Service Representatives Located in All Principal Cities of the United States and Canada

OAKITE *Specialized* **CLEANING**
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT



ARMSTRONG - BRAY
STEELGRIP
Flexible Belt Lacing

11 sizes boxed or in long lengths for wide conveyor belts. Best for rubber and fabric belts because it compresses belt ends and prevents fraying. Applied in a few minutes with a hammer. 2-piece hinged rocker pins. Also WIREGRIP Belt Hooks that fit any lacing machine. Immediate delivery on both types.

Write for Circulars

ARMSTRONG - BRAY & CO.
"The Belt Lacing People"
5340 Northwest Highway
Chicago, 30, U. S. A.

Points to remember
Buy War Bonds and

NEW BEDFORD, MASS. ALLEN COMPANY.

CONSERVE YOUR BEAMS! STACK THEM don't PILE THEM

ALLEN COMPANY, 136 River Road
New Bedford, Mass.—So. Rep.
Mr. L. E. Wooten, Fort Mill, So. Car.

4

When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address. A penny postcard will do—but please indicate your *old* and *new* address, and any new company connection or position.

TEXTILE WORLD
330 West 42 Street — New York, N. Y.

WANTED

ENGINEERS

MACHINE DEVELOPMENT

Graduate engineer or equivalent, experienced in the design and development of special and experimental machines. Men with creative ability required, experienced in such lines as automatic, semi-automatic, or ordnance equipment.

Must be thoroughly acquainted with modern methods and shop practices and capable of developing new ideas in conjunction with modern mechanical laboratory facilities.

State age, marital status, details of education, experience, draft status, present salary and salary expected. Enclose recent photograph or snapshot.

Post-war opportunity.

Applicants must be able to obtain Statement of Availability.

E. I. du Pont de Nemours & Company, Inc., Personnel Division. Wilmington 98, Delaware.

WANTED

FIXERS

FOR DRAPER LOOMS

IN OUR NEW TIRE CORD FABRIC PLANT

Men who are looking ahead will welcome this opportunity to start right at the beginning of one of the most important new developments in the textile industry.

We have openings for several loom fixers in our new plant (now being completed) located in Painesville, Ohio, a small, attractive mid-western town. The work is of critical importance to the war and offers an outstanding post-war future.

Write in full detail, giving age, education, experience, draft status. Interviews arranged to suit applicants' convenience.

INDUSTRIAL RAYON CORP.

Dept. T, 500 Fifth Ave., New York 18, N. Y.

MANAGER

For cotton mill making colored yarn fabrics, suitings, coverts, tickings, denims, sale yarns. Must have knowledge of mill, office, fabric development, sales, and be capable of assuming many responsibilities. Location deep south.

P-122, Textile World
520 North Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT

WANTED—Male Help. Cost department in Cincinnati manufacturing plant. Conversant with time study analysis, standard cost system, setting up and allocating detail costs covering labor, material, burden, general expenses. Permanent position for right person. Give all details as to age, experience, and salary desired. P-137, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

KNITTER AND mechanic on seamless hosiery machines. Excellent opportunity. Apply—Ainslie Knitting Machine Co. Inc., 750 Grand Street, Brooklyn, N. Y.

MECHANIC WANTED, Scott and Williams Rib machines, making cotton underwear cloth. Highest salary and good proposition for a real experienced man. Write stating experience. P-138, Textile World, 330 W. 42nd St., New York 18, N. Y.

MECHANIC WANTED on Wildman Spring needle machines making rayon underwear cloth. Highest salary and steady work all year for good experienced man. Write stating experience. P-139, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on page 220)

WANTED

PRODUCTION MANAGER BRAIDED RUG MILL

Large eastern cotton rug manufacturer has opening in organization for production manager in braided rug division; excellent future for right man who must be conversant with all phases of business including raw materials, labor training, styling. State full details experience, age, compensation desired, etc. All replies will be held strictly confidential.

P-994, Textile World
330 West 42nd St., New York 18, N. Y.

BOSS CARDER

WANTED

BY WESTERN WOOLEN MILL

An immediate and permanent job is now open for a thoroughly experienced boss carder in a modern Western woolen mill. The man we are looking for need not be located in the West at present, but he will find the climate and living conditions here excellent. Salary up to $80.00 a week, depending on experience and ability. Write us fully, all replies will be treated with utmost confidence.

P-132, Textile World
68 Post St., San Francisco 4, Calif.

Splendid opportunity for reliable, middle aged superintendent of a complete woolen mill located in Worcester County. Must have general manufacturing knowledge of entire mill from picker house to finishing room.

Will consider giving a good salary and an interest in the mill to the right applicant. Must furnish good references as to ability, honesty, and character. We will not consider anyone who has drinking habits.

All applications will be kept strictly confidential. Reply to

P-116, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

UNUSUAL OPPORTUNITY

For gentleman to contact the textile industries in New England, New Jersey and Pennsylvania. Must have chemical training, should be able to demonstrate and assist in the dyeing and finishing of woolens and worsteds. Old established manufacturer. Apply only if qualified, state age and compensation desired.

P-989, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

LACE DRAFTSMAN

Experienced, by well established firm in New York. Apply in writing, stating details of experience.

P-120, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

WARPER & BEAMER

Experienced on cotton (Plush Mill)

Give full details in first letter

P-983, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

WORSTED SUPERINTENDENT

for 20,000 spindle mill. Must know process on raw wool to finished yarn. Prefer man around fifty years of age, with engineering background.

P-115, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

FIXERS

for Scott & Williams and Acme Hosiery Knitting Machines

Steady Employment

P-121, Textile World
330 W. 42nd St., New York 18, N. Y.

TEXTILE MAN

New York State manufacturer has opening in plant for man with knowledge of knitting mill operation. Capable of assisting in coordinating office duties, personnel, stock. Excellent opportunity for right man with leading manufacturer in the field enjoying national distribution. State full details, experience, age, education, salary. All replies held in strictest confidence. Our employees know of this ad.

P-134, Textile World, 330 W. 42 St., New York 18

Over Forty-five Years of Dependable and Confidential EMPLOYMENT SERVICE

for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc. 'Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.

Phone: Liberty 6547 **294 WASHINGTON STREET, BOSTON 8, MASS.**

SOUTH AFRICA

E. HOLDMANN & VIDAL

160, Market Street, Johannesburg (Transvaal)

MANUFACTURERS' REPRESENTATIVES

Require agencies of American Manufacturers and exporters for:

COTTON PIECE GOODS:

DENIMS,
COTTONADES, plain and striped,
DRILLS, Khaki, Blue and others,
TWILLS, plain and printed (white on blue ground),
POPLINS, plain and fancy,
BROADCLOTHS, of all description,
GINGHAMS and other checks,
MATTRESS TICKINGS,
SHIRTINGS, plain, striped and checked,
GABERDINES and SERGES,
BLUE PRINTS (twill and others),
COTTON PRINTS of all description,
HAIRCORD, plain and printed,
LIMBRICS, plain and printed,
CAMBRICS, plain and printed,
FLANNELETTES, plain, striped and floral printed,
CALICOES, bleached and unbleached,
REPS, plain colours,
FURNISHING FABRICS, plain, figured, and printed,
UPHOLSTERY FABRICS of all description,
BLACK CASHMERES,
SHEETINGS of all description,

And all other kinds of cotton piece goods suitable for native and bazaar (chain store) trades, as well as for manufacturers of garments for these trades.

RAYON PIECE GOODS:

All kinds suitable for native and bazaar (chain store) trade, and for manufacturers of cheap and medium quality garments.

WOOLEN PIECE GOODS:

All kinds suitable for manufacturers making cheap and medium quality garments.

KNITWEAR:

Women's and children's bloomers, panties, slips, vests, etc.,
Men's and boys' vests and trunks, pullovers, slip-overs, cardigans, bathing suits and trunks.

HOSIERY:

Women's stockings,
Women's and children's ankle sox,
Men's and boys' sox

READY MADE COTTON OR WOOLEN GOODS:

SHAWLS, plain and checked, about 60" x 66", with fringes on all four sides,
TRAVELLING RUGS, checked designs,
BLANKETS, checked and fancy designs,
QUILTS and BEDSPREADS, plain, printed, woven designs, (honeycomb type etc.),
HANDKERCHIEFS,
MUFFLERS,
SCARVES,

Apart from the above mentioned items, we are interested in any goods suitable for the native and bazaar (chain store) trades.

E. HOLDMANN & VIDAL

160, Market Street,

Johannesburg (Transvaal)

BANKERS:
Netherlands Bank of South Africa,
Kruis Street,
JOHANNESBURG.

TERRITORY COVERED:
Union of South Africa,
South West Africa,
Southern Rhodesia.

FOR SALE

IMPROVED INDUSTRIAL PROPERTY

U. S. Nitrate Plant No. 1,
at Sheffield, Alabama, in the

MUSCLE SHOALS AREA

of the

TENNESSEE VALLEY REGION

A total of 149 acres of improved land with power, water, and sewerage facilities installed—adjacent to paved streets and highways. 14 structural steel, brick and sheet metal buildings, with a total floor space of 194,666 square feet, in excellent state of repair. These structures provide adequate space and accommodations for factories, foundries, machine shops, garage, storage and offices.

IDEAL FOR INDUSTRIAL DEVELOPMENT

LOW COST ELECTRIC POWER

Served by main line Southern Railway System. Water transportation available. Excellent schools, churches, and recreational facilities.

Also COMPLETE POWER PLANT to be sold as an operating unit in place, or for dismantling and removal.

For detailed information or an appointment to inspect the property, write

TENNESSEE VALLEY AUTHORITY
Land Division, 108 Vine St.
Decatur, Alabama

WANTED

TWO—2 spindle Open or *Intersecting preferably* GILLS
2" dia. front roller—3" dia. back roller—9 x 14" bobbins—7/16" pitch faller screws.

ONE—6 spindle Drawing Box
2½" dia. Back roller
4" dia. front roller
8 x 14" bobbins—or 8 x 14 preferably

ONE—8 spindle Drawing Box
2½" dia. back roller
4" dia. front roller
7 x 14" bobbins—or 8 x 14 preferably

SIX—200 spindle Cap Frames
4 feet ends preferred—3½" pitch—1¼" dia. back roller—4" dia. front roller—15½" spindle traverse for 6½ x 2" inside dia. caps or similar—.418 dia. of spindle x 3¼" head—.623 dia. of head—spinning wharles 1" dia. 5¼" long tube .4165" x .537.

W-117, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

Obermaier Package Dyer

W-128, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

1 set of woolen cards (3 cylinders) 48" x 60" face with Brest.

W-135, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

1—2 Spindle—14x9—Gill Box—Good condition.
1—Weigh box. 6 Spindle or 8 Spindle to fit—14x9—Bobbin.

W-124, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

Complete plants to manufacture women's and men's hose, for export.

W-129, Textile World
330 West 42nd St., New York 18, N. Y.

WANT TO BUY

CREPE THROWING PLANT

Approximate capacity of 10,000 lbs. per week. Prepared to consider operation in present location.

BO-136, Textile World
330 W. 42 St., New York 18, New York

POSITIONS WANTED

(Continued from page 218)

NYLON HOSIERY tram throwing. Post-war plans of a large hosiery mill. A technical and practical superintendent of modern throwing desires to contact a hosiery mill contemplating their own nylon throwing department. Married, age 38, location no object. PW-913, Textile World, 330 W. 42nd St., New York 18, N. Y.

PRACTICAL RAYON throwster. Wide experience in the throwing field—capable organizing large or small throwing departments. Age 43 years, married, 1 child. PW-975, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT, Textile School graduate 40 years of age, married, 15 years experience in silk rayon and cotton, desires change. PW-977, Textile World, 330 W. 42nd St., New York 18, N. Y.

OVERSEER OR Head fixer of knitting room. 23 years experience, 6 years mechanical development in large textile mill. Thoroughly familiar with all equipment of hosiery, underwear, knitting and sewing machines. PW-140, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

REPRESENTATIVE WANTED

DISTRICT SALES representative — An outstanding manufacturer of textile chemical processing specialties has an important position open in the states of Georgia and Alabama for a man with the proper qualifications. A technical school graduate with practical mill background is essential. Unlimited opportunity for the post-war period. In replying give complete business record for the past ten to fifteen years, references, family status, whether presently employed, and enclose recent snapshot (not returnable). Our organization knows of this advertisement. RW-108, Textile World, 330 W. 42nd St., New York 18, N. Y.

BUSINESS OPPORTUNITIES

BOSS DYER and superintendent of dyeing and finishing, 45 years old, draft exempt can go anywhere if things are right, also have had twenty some years experience dyeing cotton, rayon, acetate crepe piece goods boxes and jiggea, all kinds of women's dress goods and men's tie goods, also high class lining for men's smoking robes also would be glad to go in as a partnership. BO-106, Textile World, 330 W. 42nd St., New York 18, N. Y.

(AVAILABLE FOR RAYON)

LIAISON MAN, MILL or PRODUCTION MANAGER

Capable, energetic, experienced in all operations. Now Junior Executive with large mill group. 14 years experience includes yarn purchasing, technician, production planning and control. 38 well educated, desires improved status.

PW-112, Textile World
330 West 42nd St., New York 18, N. Y.

THROWING SUPT. & MANAGER

With long practical experience, Throwing Hosiery Yarns, Crepe, Nylon, Rayon, Silk, Sewing Threads, etc.

Well acquainted and known in both the Throwing and Hosiery Trade, is open for position as Manager or Supt. of Throwing.

PW-114, Textile World
330 W. 42nd St., New York 18, N. Y.

BUSINESS OPPORTUNITIES

ATTENTION GREY goods mills. Are you interested in obtaining a higher divisional factor and save brokerage commissions on your cotton grey goods? Top manufacturer interested in entire or part output for current and postwar proposition to convert your grey goods into printed fabrics and bleached goods. Can also finance or purchase interest. BO-141, Textile World, 330 W. 42nd St., New York 18, N. Y.

COTTON MILL. We offer to make permanent investment or a long term loan to obtain all or a part of the mills production. State your proposition in full details which will be kept in confidence. BO-142, Textile World, 330 W. 42nd St., New York 18, N. Y.

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Mill wanted to manufacture
Will supply yarn

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330 West 42nd St., New York 18, N. Y.

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(Additional Equipment Wanted Advertising on page 226)

A Partial List of Equipment Ready for Immediate Shipment

3—46" x 52" Button Breakers
3—42" Butterworth 3-Roll Friction and Rolling Calender, 1—motor driven, 2-belt dr.
1—3 Cyl S & F Card Set 48" with feeds.
1—60" D. & F. 2-cyl. Iron Shoddy Card
1—54" American Coating Machine
2—100 Spindle Foster Model 25 Doublers
1—36" Doubling & Winding Machine
1—60" Windle Doubling Machine, Motor Dr.
1—68" P.&W. Doubling Machine, Mtr. Dr.
1—46" Windle Doubler
1—60" Windle Doubler, Winder and Measurer
1—6 Delv. Whitin Drawing Frame with 12" coiler, and motor
1—4 and one 6 delv. H & B dr. frame
1—40" Power Duster
1—28" Stick Klauder Weldon Skein Dyeing Machine
1—Franklin Package Dyeing Unit, incl. three 100-lb. and one 300 lb. machine, extractor and winders
1—Laboratory Hydro Extractor
1—30" American Laundry belt driven extractor
1—40" American Tool underdriven Copper basket belt driven extractor
1—40" Weston Bronze Basket Extractor
1—42" Fletcher Copper Basket Extractor
2—Hunter No. 10 Fulling Mills
10—40" C&M 42", 46", 50", 100" Folding Machines
1—52" James Smith Card Grinder
8—1200 h. Halton Jacquards, 9" lift
60—42" Modified "E" Draper with roller tops, 47½" reed space, belt driven
8—17 ft. Fletcher Victory Web Looms, 12 space, 1942, with numerous parts and supplies

DECEMBER-JANUARY

SPECIALS

1—90" D.&F. Single Acting 14 Roll Napper

1—90" P&W 20 Roll Dble Acting Napper

2—92" D & F Warpers with Beamers

4—82" D.&F. Warpers with Beamers, etc.

2—54" Entwistle Warpers

1—Complete Set Combers including:

1—Whitin Ribbon Lapper
1—Whitin Silver Lapper
8—Whitin Model "C" Combers

30—76" Reed Space 2 x 1 Draper modified D Auto. Looms, 20 harness; motor driven
100—82" Reed Space 2 x 1 Draper modified D Auto. Looms, 16 harness, motor driven
43—82" Stafford 1 x 1 automatic Looms, 20 harness, motor driven

18—82" C & K 4 x 4 25 Harness Belt driven woolen looms
1—40" D & F Mixing Picker
2—40" H & B Single Process Pickers
1—Wm. Schofield Rag Picker, Reconditioned
1—24" Parkhurst Burr Picker, Reconditioned
2—C&M Fearnaught Pickers, 40" and 48"
1—66" Voelker Cloth Press
2—50" Dinsmore Inspecting, Sewing & Rolling Machines, Mtr. Dr.
1—41" Monforts 3 Blade Cotton Shear
1—60" C & M Plush Shear, Arranged for Mtr. Dr.
3—66" C & M 2-Blade Shears
14—66" P & W 2-Blade Shears
1—66½" P & W Model A 2-Blade Shear
1—72" Monforts 2-Blade Shear
1—Schultze 106" Double Shear
1—Smith & Furbush Rag Shredder
1—42" C. & M. 5 Burner Gas Singer
6—24 Spindle Fairmont Drum Spoolers for 4½ x 6" spools
10,000—4½ x 6" Wooden Spools
6—120 Spindle Draper Spoolers wi. Tensions
2—Warp Compressor Machine Co., Multiple Jack Spoolers
1—60" C & M Tiger, Arranged for Mtr. Dr.
4—20 Spindle Universal #90 Filling Bobbin Winders, bottom supply
4—100 Spindle Foster #12 tube winders, belt driven
1—200-spindle Draper 2¼" Ring Tape Drive Twister
1—Barber Coleman Auto. Warp Tying Mach., size 4-E
2—60" Edge Stenciling & Winding Machines

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. MLC 1923

31-33 West 42nd Street — NEW YORK 18, N. Y.

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186 Draper 45" reed space, Model E Looms, complete with pick counters and warp stop motions at a very attractive price.

20 Atwood 5B twisting doubling machines, 3⅜" Edie rings, individually motor driven.

70 Crompton & Knowles 4 x 1, 52" looms, roller bearing, shock absorber, high pickwheel, removable cloth rollers, individually motor driven, warp stop motions and pick counters.

10 Crompton & Knowles 4 x 4, 82" reed space, 20 harness intermediate head, woolen looms.

40 Crompton & Knowles automatic looms, 4 x 1, 30 harness dobbies and multipliers, 52" reed space, individually motor driven, pick counters, and warp stop motions.

Looms
Warpers
Winders
Coppers

Jacquard machines
Spinning and throwing machines
Finishing machines

Dyeing machines
Textile motors
Shuttles—Quillers
Harnesses

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COLLINS & AIKMAN CORPORATION

Sales & Salvage Div.

5th & Upland Aves.,
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FOR SALE

2—Gerry Rag Pickers
4—60" Bramwell Feeds
2—48" Wide x 60" Woolen Cards
20—#50 Universal Winders Rebuilt
15—#90 Universal Winders Rebuilt
5—#180 Universal Super Coners Rebuilt
3—Whiten 378 Sp Quillers
Warping Mills, rebuilt, various widths
10—Long Chain Beamers
1—600 Hook S & U Card Repeater
20—75" 12 Har. Heavy C & K Auto. Looms
7—82" 25 Har. Heavy C & K Auto. Looms
8—P & W and C & M Double Shears
7—Gessner & Voelker Double bed Cloth Press
1—E & H Folder
2—81" Woonsocket DA Nappers 20 rolls

Write to us advising us of your needs or any idle Machinery you wish to dispose of.

FRANK W. WHEELER COMPANY
1837 E. RUAN STREET
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Phone Jefferson 4771

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BUTTERWORTH CALENDAR
7 ROLLS—80" FACE
8 Composition Rolls, 4 Steel Rolls, Hydraulic lift —water-cooled journals. Located in South
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Scott & Williams — Banner — Wildman — Reading — Kalio — etc., etc.
All types of hosiery mill equipment on hand
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17—355, 528, 730 & 1100 ft. Cap.
DIESEL UNITS
260 H.P. Superior 600 RPM Engine.
240 H.P. Worthington 3/60/2300 Generator.
130 H.P. DeLavergne 3/60/220 V. Generator.
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354,580—7" Automatic Loom Bobbins
86,594—7" Triptod Bobbins
20,000—8" Wool Bobbins—3 Ring
200,000—8" Auto. Loom Bobbins (Black Enamel)
400—14x7 Drawing Spools (Worsted)
263—37x6 Jack Spools
8,000—5"x2"x1⅞" Twister Bobbins
63,300—6"x2"x1¾" Twister Bobbins
22,619—Black Enamel: 8½x2½x1⅞
GEARS
1189—Ratchet Ring Gears (24 to 106 Teeth)
620—C&K Ratchet Pick Gears—#W1270—(32 to 92 Teeth)
75—Motor Pinion Gears—C&K—(16 to 29 Teeth)
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KNITTERS - RIBBERS - LOOPERS
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RIBBER CYLINDERS & DIALS
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ROBERT SCHOONMAKER
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"CONSOLIDATED"

OFFERS TO WAR AND POSTWAR

TEXTILE INDUSTRIES

This part-list of Machinery and Equipment to meet production problems

SCOURING & DYEING

2—Haveg Washers, completely enclosed.
1—Sargent 3-Bowl Skein Scouring machine.
6—Klauder-Weldon Skein Dyeing Machines.
1—Rodney 7-string Dyeing Machine.
1—Obermaier Combination Package & Rawstock Mch.
1—Buhlmann 100 roller cap. 14-color skein dyer.
1—Franklin 500# Package Dyer.
1—1000# Raw Stock Dyeing machine.
1—Obermaier Dyeing Machine.

EXTRACTORS

6—V.V. & Tolhurst 54" & 60"; rubber & copper baskets.
8—V.V. Fletcher & Tolhurst 40-48", copper lined.
10—Tolhurst, American Laundry, Bock, & Troy 14"42", copper baskets.

WASHERS

1—Continuous 60" Boil-Off Machine, steel tanks.
1—Van Vlaanderen 60" Open Washer.
2—Open Washers, 5 & 8 compartments, 50" face.
6—Compartment 30' Washer, 66" wide.
2—Hunter 6 string washers.

CALENDARS

2—V.V. Ball Bearing Calendars, 50" & 60".
6—V.V. Butterworth & Textile 3, 6 & 7-Roll Hydraulic Calendars, 80".
3—Butterworth & Perkins 40", 54" & 80" 3-Bowl Schreiners.
1—Butterworth 3-Roll 54" Friction Calendar.
2—54" Embossers.

DRYERS

3—National & P & S Loop Dryers, 30-65' long.
1—P & S 72" Raw Stock Dryer, automatic feed.
1—Phila. Raw Stock Dryer, 48", automatic feeder.
3—Sargent & Hunter Wool Carbonizers.
4—Truck Dryers, 1 & 2 trucks.
1—Multipass Airlay Dryer.
6—Proctor & Schwartz Yarn Dryers.
1—Pin Tenter Dryer, 64" wide.
1—V.V. 5-Tier Net Dryer.

TENTER FRAMES

1—Textile Fin. Mach. 90' x 50" Tenter.
1—W & J 80' x 50" Swing Tenter.
1—Heathcote Pin Tenter.
1—25' Tenter with Bakelite clips.

PALMER QUETCHES & TENTERS

2—V.V. Palmers, 60" & 72".
3—Morrison & V.V. 50", 60" & 72" Palmer Quetches.
1—Butterworth 84" Palmer Quetch with Tenter.
2—V.V. & General Machine 60" Palmerettes.

PADDERS, MANGLES, QUETCHES

5—Textile & Butterworth 2-Roll Padders, 50", 62" & 90".
4—Butterworth 50" 2-Roll Starch Mangles.
1—James Hunter 50" Water Manger.
5—Butterworth & Morrison 2 & 3-roll Quetches, 50-72".

BUTTON BREAKERS

2—Morrison & V.V. Button Breakers, 50-72", brass rolls.

DRY CANS

416—Dry Cans, 50" to 112" face, 23" to 84" dia.

PRINTING MACHINES

7—R. B. & F 1-10 color Print Machines, 40-60".
1—Waldron 4-Color Wallpaper Print Machine.
1—V.V. 10-color Ribbon Print Machine.

AGERS

4—Butterworth Cast Iron Agers, 12', 18' & 30' long x 50-60" wide.

CARDING MACHINES

6—Sets D & F Worsted Cards, 60" x 54".
2—Sets D & F Worsted Cards, 60" x 48".
2—Sets S & F Worsted Cards, 54" x 54".
12—D & F Worsted Cards, 48" x 48".
19—Sets D & F Woolen Cards, 48" x 48".
1—Sample Card, 48" dia.
15—D & F Breaker & Finisher Cards, 48" x 50".
8—Sargent, Bramwell & Harwood Feeds, 26-72".

SPINNING MACHINES

2—Large Package Mules, 240 spindles.
155—Whitin & D & F Spinning Frames, 240 spindles, 252, 2" & 3" gauge, band driven.
100—Deliveries H & B Drawing Frames, 12" coilers.
12—Universal #50 & #90 Winders.
133—Fletcher double deck Twisters.
5—Fearnaught & S-L Pickers, 30-60".

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15 Park Row, New York 7, N. Y. Tel. BArclay 7-0600

BUTTON BREAKER, Morrison 50"
CALENDER, 3 roll, Cavagnaro, 52" wide
CALENDER, 3 roll, King & Gerber, 60"
CALENDER, 3 roll, Finishing, 48"
CALENDER, 4 Bowl, 2 paper, 2 steel steam heated rolls arranged for lever pressure.
DRY CANS, set of 37, copper 112" syphon type, mangle
DRY CANS, set of 12, copper 28" dia.x50" face, vertical arrangement
DRYERS, Net Conveyor, 50" & 60" wide
DRYERS, LOOP, Proctor & Schwartz
DRYER NATIONAL LOOP 82", Rev. Sticks Air Fin. 3 side Fans & Booster Fan
DYE TUBS, Copper, Skein, various lengths
BEAM EXTRACTORS, 50" Van Vlaanderen
EXTRACTOR, 60" Van Vlaanderen, rubber basket, with loading device
EXTRACTOR, 48" Hercules, tinned copper basket. Open top
2—EXTRACTORS, 48" Amico Hydro, copper basket. Open top
FLOCK STENCIL MACHINE, with patterns
2—FLAT FOLDERS, Elliott & Hall
INFRA RED units complete with blowers
KETTLE copper tilting 65 gal. cap. 30"x26"
PALMER QUETCH UNIT, Butwrth 54"
PALMER PIN TENTER, Mangle unit 84"
PALMERETTE 60" face, General Machine
1—#3 NASH PUMP, Bronze casing
3—REEVES DRIVES, 000 Hor. totally enclosed
RIBBON FINISHING UNIT, complete, quetch cans, calender, motor
RIBBON PRINTING MACHINE, comp. 10 color
TANK, rubber lined & covered
TENTER FRAMES, W&J, 60'x44" & 30'x50"
WARPING MILLS, 3 yards x 180" face, complete with dial
WASHER, VV, 3 compartment
WATER SOFTENER & FILTERS
WINDERS, Benj. Eastwood, hard silk, complete with swifts

"We are prepared to help you in disposing of or acquiring both complete plants and individual machines. Your inquiries cordially invited."

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Parkhurst 48 in. DUPLEX BURR PICKER
2—WHITIN 50 inch CARD FEEDS
One SPENCER OILER for PICKER
15—TOMPKINS KNITTING TABLES
EXTRA-CYLINDERS
(Both Spring & Latch Needles)
KNITTING PARTS
BURR-WHEELS
(All makes and Gages)
2—DAVIS & FURBER 50 inch NAPPERS
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McCREARY 4 roll STEAM CALENDER
2—Firschine SLITTING MACHINES
1—Ireland SLITTING MACHINE
1—Grand Rapids SLITTING MACHINE
1—Adams SLITTING MACHINE
4—PAYNE 40 sq. BOTTLE WINDERS
Geo. E. Smith Textile Machinery Co.
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30" LOOMS
76—Draper 30" Model E used looms in good condition. Complete with Lacey top motions, pulleys, shafting, beams, etc. Located in South.
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IMPORTER, DEALER AND MANUFACTURER
TEXTILE MACHINERY AND APPLIANCES
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132 Spindles
4½" Rings
6" Gage
2¼" Whirl
9" Diameter of Cylinders
1⅞" Diameter of Front Rollers
4 Spindle Tape Drive
BRASS UNDER ROLLS
1 17/32" diameter front roller
2½" diameter top roller
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3 ply creel
FS-097, Textile World
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1—U. S. Colloid Mill #12 with 3 Motors 550 V.
7—7' Copper Cans 56" wide
7—5' Copper Cans 56" wide
1—130" Warp Splitter
3—Ping-Pong Machines
1—2 Color 42" Print Machine
3—36" Hydro Extractors—1 Basket Copper—2 Baskets Iron
1—54" Simpson Winder
1—40' Straight Tenter 102" wide
2—45" B.B. Scutchers
1—66"—5 Bowl Watermangle
2—50"—6 Bowl Calenders—Roller Bearings
1—36" Hydr. 3 Roll Calender for Narrow Fabrics
2—9' Slack Washers
1—Lift-Truck with Platforms
1—4 Can-Drier 5' dia. 58" wide Copper
1—1 Color 50" Print Machine
6—90' Tenter Chains W & J
Hydro Extractors—24" 26" 23"
1—44" Perkins—Shreiner Cal.

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Tompkins Knitting Machines
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Complete
Cloth Finishing Equipment
To Be Sold As
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Dealers In Rebuilt and Guaranteed
Yarn Winding and Spinning Machinery
141-45 West 17th Street New York 11, N. Y.

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1—Butterworth Tenter Chain, 1100 Clips.
SLATER DYE WORKS
727 School St. Pawtucket, R.I.

FOR SALE
12—Draper Mod. D. auto. bobbin change looms, 69½" R. S. 20 harness, arr. for motor drive
12—Stafford 40" shuttle change looms, motor drive 220 V.
1—Arlington 45" Scutcher
2—D-2 Combers 9¼" lap. with asperators
1—Ingersoll-Rand 14x8 single stage Compressor, with idler
13—#50 Cone Winders, tensions, waxing att., clutch drive
Picker Aprons—Mossberg Selvage Spools
Bobbins • Spools • Supplies • Pulleys, etc.
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BAY STATE TEXTILE CO.
220 HARTWELL STREET • FALL RIVER, MASS.

FOR SALE
4 Klauder-Weldon Skein Yarn Dyeing Machines stainless steel lined: bronze Spiders. 2-56 stick and 2-21 stick. Will take 48" up to 72" skein. Motor to drive entire unit and blower for unit. Will sell whole or in part.
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2 Allens Ave., Providence, R. I.
Gaspee 5548 Williams 9011

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TEXTILE MACHINERY OF ALL TYPES
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NEW AND USED
Philadelphia Office: 140-142 So. Front Street, Factory Warehouse: Collingswood, N. J.

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24 Spindle Oswald Lever Bottle Bobbin Machines. All Metal with Parafine Attachments. Excellent Condition.
FS-119, Textile World
330 W. 42nd St., New York 18, N. Y.

LIQUIDATING

EXCELLENT TEXTILE EQUIPMENT READY FOR IMMEDIATE SHIPMENT

LOOMS

100—Draper Model K 45" Looms, Belt Driven, 8" Bobbin.
20—4 x 1 C & K Hand Threading Looms, 43½"
190—1 Box Automatic Hopedale Plain Looms.
600—Draper Automatic Looms with Slashing Auxiliary equipment.
200—C & K 2 x 1 Looms.
200—800 hook C & K Double lift jacquard heads.
32—C & K #1304 Fine Index Double lift single cylinder heads.

DYE PADDER

1—Butterworth 2 Roll Dye Padder, Brass and Rubber Roll, Motor Driven.

EXTRACTORS

2—60" Steam Driven Centrifugal Extractors, Perforated Copper Baskets, Quick Opening Cover, 600 R.P.M.
1—Kranz 42" Centrifugal Extractor, enclosed motor, perforated copper basket, quick opening safety Cover AC Motor drive.

TENTER FRAMES

1—Textile 40' Pin Tenter Frame, Link Belt Drive, #3 Reeves General Electric 5 HP, 60 Cycle, 3 Phase Motor, 60" wide, General Electric Guiders, Steam Heating Coils.
1—Winsor & Jerauld 40' Tenter Frame stainless steel clips. Reeves drive. A-C Motor.
1—Van Vlaaderen 50' goods, equipped with Marshall Williams Stainless steel clips. Reeves Variable speed transmission. All accessories.

BRUSHING MACHINE

1—Curtis and Marble 58" type 2-1 Brushing Machine equipped with 2 soft brushes 9" dia. and 1-2 h.p. Motor.

CAN DRYERS

1—Textile Can Drying and Rolling-up machine, Copper Can 36" diameter, 50" Face.
1—Textile Finishing Machinery Company set of 8 Copper Cans—2 Stacks, 4 Cans to a Stack, Vertical Stacks, 50" wide.
1—Textile Finishing Machinery Co. Copper can dryer consisting of 8 cans, 23" dia. 54" face with take-up, let-off. Reeves Variable speed transmission.
1—Textile Rolling-up and steam machine equipped with copper can 40" dia. 48" face.

DRYERS

1—Philadelphia Drying Machine Co. "Hurricane" Loop cloth dryer, class D equipped with side driven fans. Air feed arrangement, 84" poles, heated equipment, fans, plaiter, sticks are bakelite & cork covered.
1—Van Vlaaderen 5 tier 4 section conveyor dryer for 60" goods equipped with new chain. Motor driven fans airfin heating units.

COTTAGE STEAMER

1—Robert Metcalf Cottage Steamer, 10' long x 8' wide.

DYE BECKS

1—Stainless steel lined 18" dye beck Tank 18" x 30" x 96" Single Slot reel, Brass Idler rolls. Geared link chain drive.

SPECIAL
ENGRAVING EQUIPMENT

7—John Hope 50" Pantograph machines, Double Bar, #1381-1387.
10—John Hope 48" Pantograph machines, Double Bar, #1388-1397.
1—John Hope 45" Pantograph machine, Double Bar, #1396.

SPECIAL
COTTON SPINNING EQUIPMENT

2—Complete Murray Cotton Gins.

1—Kitson Bale Breaker, consisting of:

1—Automatic Feeder, 37½"

1—2 Beater Breaker Picker, Ball Bearing Beaters, 1—16" Porcupine Beater, 1—16" 2 Blade Beater, Motor Driven by 2—5 HP 440 Volt Motors.

3—Kitson 40" Intermediate Pickers with 2 Blade Ball Bearing Beaters, 16", and 12' Apron, Motor Driven.

3—Kitson Finisher Pickers, 2—16", 2 Blade Beaters, Ball Bearing, 12' Apron, Motor Driven.

39—Saco and Pettee 40" Revolving Flat Cards, 27" Doffers, 12" Coilers, 5 Point Settings, Spindle Back.

108—Deliveries, Saco and Pettee Drawing 1⅜" Metallic Rolls, 12" Coilers.

10—Saco and Pettee 11½ x 5½ Slubbers.
(1) 40 Spindles
(4) 52 Spindles
(5) 60 Spindles

2—Providence Slubbers, 11 x 5½, 60 Spindles, 1¼" Front Rolls, Serial No. 8400 Range.

11—Saco and Pettee Intermediates, 9 x 4½, 92 Spindles, 1¼" Rolls.

26—Saco and Pettee 7 x 3½ Speeders, 152 Spindles.

105—Fales & Jenks Spinning Frames, 240 Spindles, 2¾" Gauge, 1⅜" Rings, Whitin, Medium Spindles, Band Driven, 7' Cylinder, Wood Thread Boards, Motor Driven by 5 HP A.C. 440 Volt Motors, V-Belt Drive.

45—Fales & Jenks 220 Spindle Twisters, 3" Gauge, 2" Rings, Wood Thread Boards, 8 Slat Wood Creel, 7½ H.P. Motor Drive, 440 Volt, Clover Leaf Heads.

15—Easton Burnham and Draper Spoolers.

15—Universal #50 Winders.

QUETSCHES

1—General Machine Co. 50" 2 roll Quetsch equipped with brass rolls.

1—Van Vlaaderen 3 roll quetsch 60" face. Motor driven, chain drive by 1 h.p. General Electric AC Motor.

KNITTING MACHINES

Wildman, Scott & Williams, Brinton, Supreme.

SEWING MACHINES

Singer, Union Special, Merrow, Metropolitan and Willcox & Gibbs Flatlocks.

FINISHING CALENDERS

1—Butterworth 42" Hydraulic Schreiner 2 Bowl Calender, equipped with Cotton and Steel Engraved Rolls, Gas Heated Friction Unrolling and Batcher, Tension Rolls, complete with Accumulator and Pump, direct connected to General Electric 3 H.P. A.C. Motor, 50 Volts, 60 Cycle, 3 Phase, 900 RPM. Type M.T., with Drum Controller, Magnetic Switch and Grids.
1—Van Vlaanderen 3-Roll Hydraulic Finishing Calender, Wool Felt Bowls, Large Diameter.

COUNTERS

34—Veeder-Root, Cloth Counters.

FOLDERS

1—Eastwood Gray Goods Folder, 60" wide.
3—E & H Flat Folders, 45" to 60" wide.

GAS MIXING UNIT

1—Kemp Gas Mixing Unit with Gas burners.

KETTLES

7—Copper Steam Jacketed Mixing Kettles, equipped with Double Motion Bronze Agitators, 70 to 350 Gallons capacity.

METER

G. E. Steam flow meter.

DECATORS

1—Parks & Woolson 72" Semi-Decator, with Blanket, Nash Vacuum Pump and Motor.

DOUBLERS AND TUBERS

1—Parks & Wilson 54" Doubling and Reeling.
1—Van Vlaanderen 72" tubing & doubling machine.
1—General Machine Co. 50" high speed tuber with Reeves drive.

SCUTCHERS

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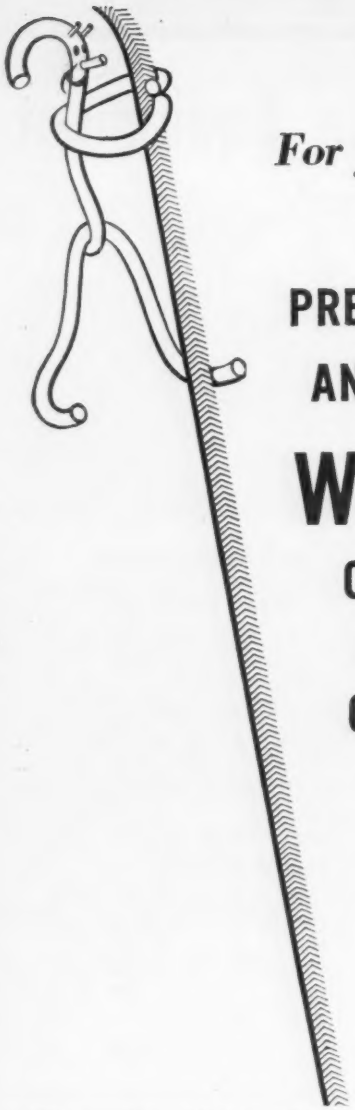

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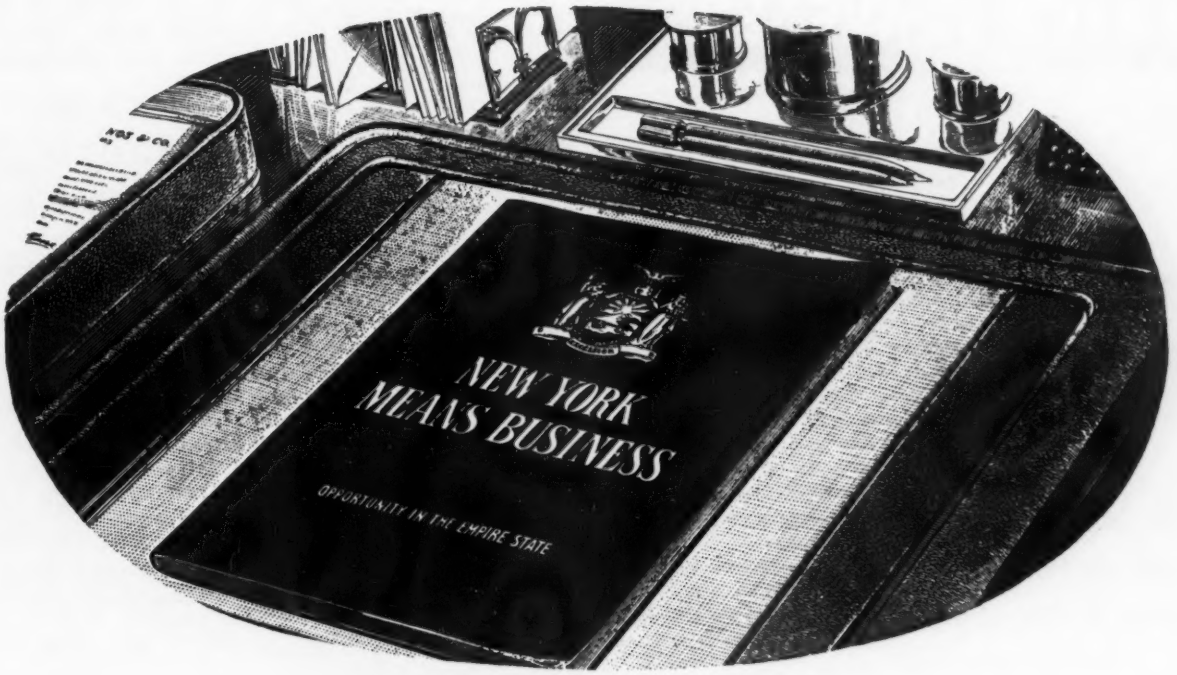

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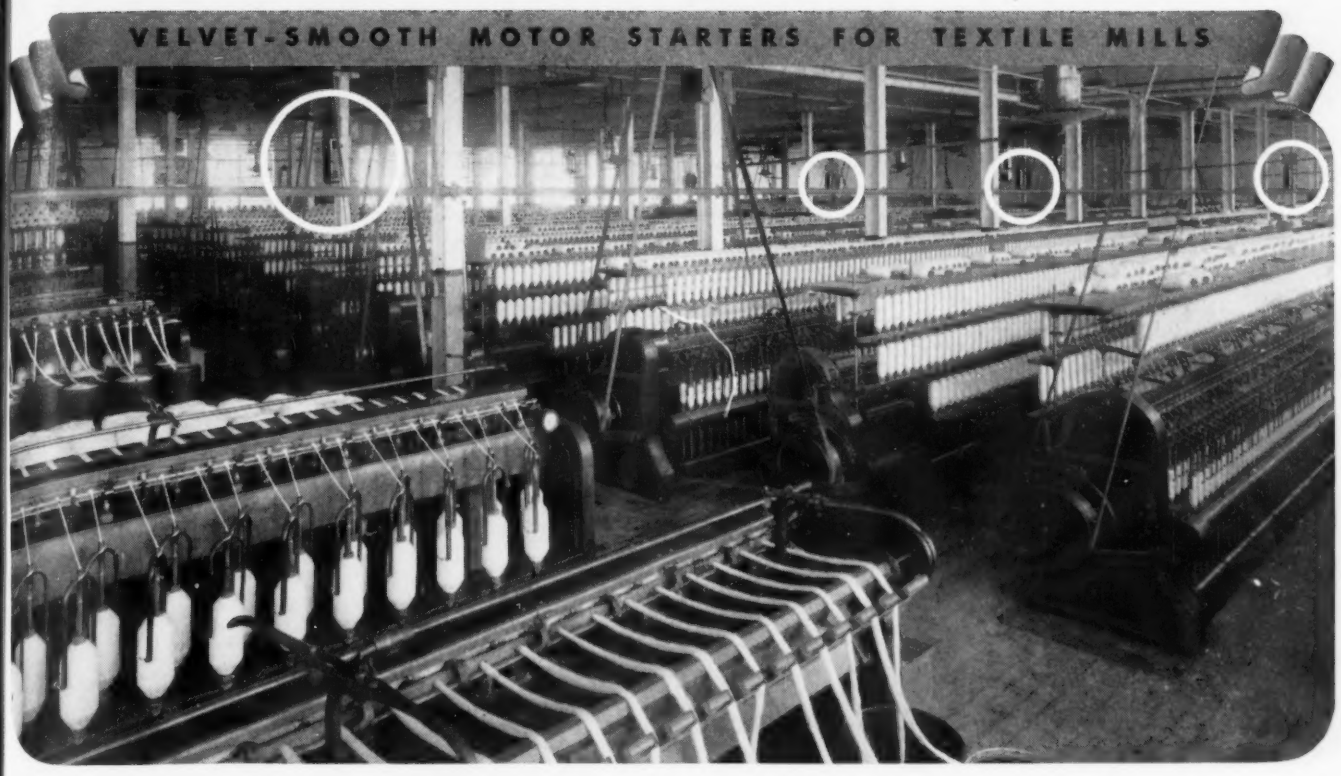
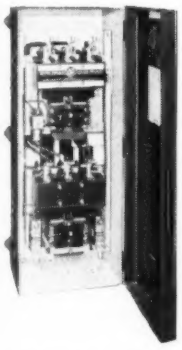


SMOOTH STARTING REDUCES YARN BREAKAGE



Open view of Bulletin 740 automatic reduced voltage starter.

There is less breakage, even on tender yarns, when you use Allen-Bradley velvet-smooth motor controls on textile machines. Spindles can be brought up to full speed with velvet smoothness. The starting tension on the yarn is so light and uniform that you have less breakage, less waste, and more production per machine.

Allen-Bradley resistance starters provide this stepless speed control with Bradleyunit compression graphite disc resistors, which permit very gradual increases of power input. There is no abrupt starting jolt . . . no violent current inrush or jerk when the starter is switched to the full speed position such as occurs with an ordinary starting transformer.

There are two types of A-B resistance starters—Bulletin 640 semi-automatic in which the operator controls the starting cycle with a hand lever, and Bulletin 740 automatic starter where the operator merely presses a starting button. Wherever velvet-smooth starting is needed, specify Allen-Bradley resistance starters.

Allen-Bradley Company
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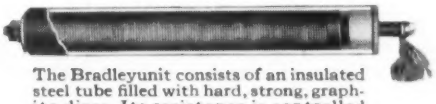
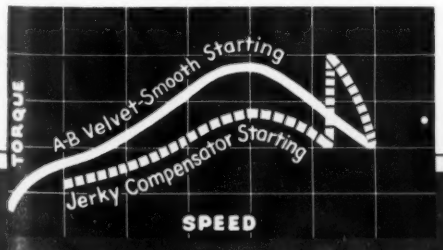
Milwaukee 4, Wisconsin



The Bradleyunit consists of an insulated steel tube filled with hard, strong, graphite discs. Its resistance is controlled by varying the pressure on the discs.

Velvet-smooth starting of Bulletin 740 starter as compared with jerky starting of ordinary compensator.



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